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Transit Research & Technology Programs Fiscal Year 2001 Report

Citizen-Centered Transit

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U.S. Department
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**Federal Transit
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A MESSAGE FROM THE ADMINISTRATOR
Jennifer L. Dorn

The Federal Transit Administration (FTA) is improving public transportation services for all Americans through new concepts, innovative technologies and strategies. As Federal Transit Administrator, it is my privilege to provide you with a directory of research and technology projects undertaken during fiscal year 2001 that illustrate the importance of transportation research and innovation in providing a higher level of citizen-oriented public transportation service. *Transit Research & Technology Program FY 2001 Report* is designed to help our customers better understand the FTA leadership role in coordinating the research and technology activities for public transit agencies and the private sector.

2001 was a defining moment in transportation history. It affirmed transportation security as the top transportation priority. The terrorist events of September 11, 2001, made it clear that the Department of Transportation, including the FTA, must put forth a strategy to make transportation more secure and safe to protect the homeland. Thus, the end of 2001 marked the beginning of the new transportation Homeland Security strategy—*to ensure the security of the transportation system for the movement of people and goods, and support the National Security Strategy.*

The events of 2001 guided us to move quickly and take a leadership role in support of the Department's Homeland Security strategic goal. We launched an aggressive five-part security initiative, distributed a Safety and Security Toolkit to the industry, deployed expert security assessment teams, and much more. To learn more about the FTA effort, please visit our Website URL [http://www.transit-safety.volpe.dot.gov/].

Jennifer L. Dorn

Jennifer L. Dorn

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FOREWORD

The U.S. Department of Transportation, through the Federal Transit Administration (FTA), is improving the safety and security of public transit services for all Americans through leadership, innovative technologies and strategies, and technical assistance. An ongoing effort within FTA to provide innovative transit services to all transit customers and to advance electric and hybrid electric technologies in transit applications is providing the foundation for moving towards a safer, cleaner, and more secure and efficient way of transporting the traveling public.

Transit Research & Technology Program FY 2001 Report is designed to help our customers better understand the FTA leadership role in coordinating the research and technology activities for public transit agencies and the private sector, promoting global competitiveness, exchanging information, and mainstreaming innovation. The report's content will increase public awareness of the importance of transportation research and innovation as a key means to save lives and reduce the risk of crashes, injuries, and property damage, as well as to protect the environment and to strengthen the nation's competitiveness in the global economy. The report will increase public awareness of the nature and scope of work underway to assist state and local agencies in improving all aspects of public transit service for transit customers, while enhancing air quality and community livability.

This report presents an overview of the FTA Transit Research & Technology Program—its mission, program areas, and project activities, as well as highlights in achieving our goals. The report identifies the sources and uses of federal research and technology funds, highlights program activities, and provides a look ahead. The Research-in-Progress section provides program highlights and summary descriptions of the 91 projects funded during FY 2001. All project activities are aimed at making measured improvements in security, safety, mobility, fuel efficiency, clean air, and professional capacity building. Improvements are accomplished through research, demonstration, testing, deployment and information transfer of innovative transit technologies and strategies.

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INTRODUCTION

Mission

The *Federal Transit Administration's mission* is to ensure personal mobility and America's economic and community vitality by supporting high-quality public transportation through leadership, technical assistance, and financial resources. To carry forward this mission, the FTA has charted a vision of leading America with high-quality public transportation that ensures mobility and livable communities.

The mission of the *FTA Research and Technology Program* is to partner with the transportation industry in establishing preeminence in U.S. transit technology, institutions, and customer service to increase the quality and level of transit services. The program's core effort is the deployment of technological innovation to improve personal mobility, minimize fuel consumption and air pollution, increase ridership, and enhance the quality of life of all communities.

The FTA takes a leadership role in coordinating transit research and technology activities for public transit agencies and the private sector, promoting global competitiveness, facilitating international information exchange, and mainstreaming innovation. This leadership role calls for vigilance in understanding the problems of the transit industry and the major trends that affect the provision of transit services—an aging population, safety and security, globalization of economies, sustainable development, and technology advancements. These trends affect the demand for specialized services, the need to counter* terrorist attacks, the importance of environmentally sensitive transit services and facilities, and the call for a strong and stable domestic transit manufacturing industry.

The FTA is placing top priority on improving the state of transit readiness to handle a potential terrorist attack. International experience has highlighted the extreme vulnerability of transit systems to attacks, and they risk becoming potential targets as other modes of transportation are secured and other types of targets are hardened. The FTA will place special emphasis on improving the state of security knowledge among transit professionals through training and technical assistance efforts. The FTA also will focus on testing and validating technology that could be used in a transit environment and rapidly deployed.

The FTA performs most Departmental RD&T on mass transit vehicles, infrastructure, and operations. Transit vehicles and control technologies tend to be specialized, and guideways may be shared with mixed traffic on highways or railroad track, or operated exclusively in busways or subways. Many transit RD&T areas thus cut across modes in their applicability.

Federal Funding for Transit Research and Technology

Federal funds for transit research and technology comprise several programs, with recent budget levels as indicated in the following table.

Program	FY 2001 Enacted	FY 2002 Enacted	FY 2003 Request
	(millions of dollars)		
National Research & Technology	$29.4	$31.5	$31.5
Transit Cooperative Research Program	8.2	8.2	8.2
National Transit Institute	4.0	4.0	4.0
University Transportation Research	6.0	6.0	6.0
Bus Testing	3.0	3.0	3.0
Fuel Cell Transit Bus	4.8	4.8	4.8
Urban Magnetic Levitation	4.4	4.4	6.0
Intelligent Transportation Systems–Transit	8.6	7.0	7.0

National Research and Technology

The FTA National Research and Technology Program encompasses several program areas, as follows:

Safety and Security

The goal of the FTA Safety and Security program is to promote the safety and security of Americans by working toward the elimination of transit-related deaths, injuries, and property damage, and the improvement of personal security and property protection. This is accomplished through the demonstration and testing of new safety technologies, promotion of transit safety and security, prevention of accidents, and preparedness for emergencies and natural disasters. In addition, the FTA collects and disseminates data on safety and security issues, identifies and implements best practices, and encourages the development and use of comprehensive system safety and security plans covering passengers, transit agency personnel, vehicles, and facilities. The FTA is placing top priority on improving the state of transit readiness to handle a terrorist attack, focusing on technical assistance and training and on security technologies that can be transitioned quickly into a transit environment.

Equipment and Infrastructure

The goal of the FTA's Equipment and Infrastructure program area is to achieve the highest level of passenger service and comfort by applying technology to increase the capacity and quality of transit service. The goal encompasses reducing life-cycle costs of vehicles, systems, and

facilities, and assisting domestic manufacturers and service industries to enhance their competitive position in the global marketplace. This program area is pursuing advancements in bus propulsion systems, enhancements in bus testing, adaptation of radio-based communication and control systems, and continuous dialogue with the bus and rail industry through research, tests, deployment, standards development, technical assistance, and training. The bus technology program will work to accelerate the commercial introduction of low-emission, high-efficiency vehicles to the transit industry, thus providing an opportunity for transit to lead the nation in deployment of advanced, environmentally friendly technologies for all vehicles. Through this program, the FTA will also work to align all fuel-cell efforts for buses to support and strengthen national efforts to develop this low-emission technology for buses. The FTA plans to support public-private partnership research efforts in electric drive technologies with a specific focus on efficient, reliable, and durable energy storage and electrically driven accessories. The FTA will collect, analyze and disseminate objective information on the performance of hybrid electric vehicles and other clean fuel buses and provide technical assistance to the National Park Service in planning and implementing transit systems to accommodate increasing numbers of visitors while reducing congestion and pollution.

The FTA will partner with one or more transit agencies to address critical technical issues related to early deployment of cost-effective Communications Based Train Control (CBTC) technology, such as equipment standards and supplemental detection equipment In partnership with the transit operating agencies and their suppliers, the FTA will work to develop high-priority rail transit standards. Standards provide added commonality to transit design and operations, and have a number of direct and indirect benefits to operators, suppliers and consultants.
Vehicle technology projects authorized by TEA-21 will be implemented under this program area. This program area will produce a Best Practices and Lessons Learned Guide as a result of the Turnkey Demonstration projects. Support will also continue for Innovative Finance demonstration projects.

The FTA plans to increase emphasis on cost-effective management of existing physical assets by providing current information on sound practices for tunnel management, operation and maintenance. Tunneling design and construction technologies will be assessed and lessons learned from tunneling projects domestically as well internationally will be catalogued and made available to the industry in the form of lessons-learned and state-of-the-art best practice guidelines. Other research topics to be considered include assessment of tunnel infrastructure conditions and evaluation of non-destructive testing methods.

Fleet Operations

The FTA Fleet Operations program area will assist in the deployment of Bus Rapid Transit demonstration projects and their documentation and evaluation. It focuses on shaping America's future by ensuring a transportation system that is accessible, integrated, efficient, and flexible. Efforts in Fleet Operations are to increase efficiency, average speed, and throughput of transit fleets through technological improvements, supporting the DOT goal of increasing transit ridership. These efforts will involve the integration of vehicle technology, Intelligent Transportation Systems, coordinated services, traffic engineering enhancements, and innovative urban design. Major elements of this program are the Bus Rapid Transit Initiative and the Mixed

Rail Operations project.

Specialized Customer Services

In support of the strategic goal of improving mobility and accessibility, work in Specialized Customer Services ensures a transportation system that is accessible, integrated, and efficient; offers flexibility of choices to riders; and enhances community living. Activities are designed to improve services tailored for low-income, elderly, and other transit-dependent travelers, including persons with disabilities. Better services improve access to jobs, educational opportunities, health care, and other essential activities for those most in need of transit. FTA is working with the HHS and other sponsors of specialized services to coordinate and integrate them with services available to the general public in an effort to provide seamless customer service and eliminate costly duplication.

R&T Program Support (Information Management and Technology)

This program area provides a more interactive web site for the FTA Research and Technology program, with several multimedia enhancements. It also allows the FTA to enhance its presentation of research and development information with computer simulations, exhibits, videos, CD-ROMs, and other forms of communication. The FTA will continue to support the Transportation Research Board (TRB) through its annual meeting, professional committee activities, and ongoing coordination and research dissemination through Transportation Research Information Services (TRIS). FTA participation in the statutory Small Business Innovation Research (SBIR) program is included as a program support activity. SBIR projects represent incubators of innovation.

Metropolitan/Rural Policy Development

In support of the strategic goal of improving mobility and accessibility, this program area will enable the FTA to develop better estimates of transit's condition, performance, and long-term investment needs; identify and evaluate the benefits of transit; conduct research into the relationships between transit and land-use planning; expand testing of standardized onboard passenger surveys; provide technical assistance to encourage the use and development of new and innovative financing techniques; provide technical assistance in support of the State Infrastructure Bank pilot program; conduct outreach on transit's contribution to the future of cities and neighborhoods; and implement TEA-21 requirements through outreach, technical assistance, and research activities. These activities allow the FTA to further refine national data on transit's role and performance in serving the needs of passengers and communities, including transit's role in providing basic mobility, relieving traffic congestion, and contributing to community vitality. Finally, funds will be used to conduct program evaluations and to maintain and implement the *FTA Strategic Plan*.

Planning and Project Development

In support of the strategic goal of protecting and enhancing the human and natural environment, this program area supports the FTA's aggressive program of research, demonstration, technical

assistance, and training on multi-modal transportation planning. These activities will ultimately assist state and local transportation planners in implementing Federal multi-modal planning provisions. Planning and project development activities encompass improved planning methods (for example, the development of enhanced travel modeling procedures); general transportation planning assistance (including long-range multi-modal planning and programming, public involvement techniques, and coordinated job access planning in support of welfare reform and other economic development goals); land use and environmental planning (including research that promotes the FTA's Livable Communities Initiative); research to advance the State of the Practice for New Starts-related analyses; and financial planning. The research is intended to enhance the state of the practice in multi-modal transportation planning and systems analysis at both the metropolitan and state levels.

Human Resources

The FTA's efforts related to human resources provide assistance for meeting Federal requirements for Title VI of the Civil Rights Act of 1964, the Americans With Disabillities Act (ADA) and the DOT Disadvantaged Business Enterprise (DBE) regulation. These projects will provide training and technical assistance to grantees and MPOs to (1) assist in their outreach efforts to the general public regarding Title VI environmental transportation planning issues, and (2) disseminate information to grantees, the business community, and interested groups on the new Departmental DBE regulation and assist them with reporting on new and revised DBE requirements. To ensure that our nation's public transportation systems are fully accessible to persons with disabilities, the FTA provides training, guidance and technical assistance to transit providers with implementing the provisions of the DOT ADA regulation, particularly those related to ADA Complementary Paratransit Service, Fixed Route, and maintenance of accessible features. Activities in this program area will also provide students with opportunities to encourage their development in careers in transportation and bolster efforts to promote careers in transit to assure a pipeline of qualified, educated persons entering the transit industry.

Performance and Review

These activities support the FTA in carrying out the requirements of the Government Performance and Results Act (GPRA) and redesign of the National Transit Database (NTD). The FTA is redesigning the NTD pursuant to Congressional direction on transit safety data reporting and other issues. The requested funding will support program evaluation activities required by the GPRA and supports DOT's organizational excellence goal.

International Mass Transportation Program

This program supports the Departmental goal of advancing economic growth and international competitiveness by providing access to international markets for the export of domestic transit goods and services. Trade missions and other trade events permit domestic providers of transit goods and services to showcase their products internationally, leading to increases in exports of domestic transit services and equipment. This activity includes technology transfer, increased trade support to the domestic transit industry, and transit training and information diffusion for developing nations.

Transit Cooperative Research Program (TCRP)

The TCRP focuses on issues significant to the transit industry, with emphasis on local problem-solving research. The *FTA Strategic Plan* and *Research and Technology Five-Year Plan* provide the framework for TCRP efforts, which include research in a variety of transit fields such as planning, service concepts, vehicles and equipment, facilities, operations, human resources, maintenance, policy, and administrative practices. TCRP synthesis reports summarize best industry practices and have been useful to transit operators.

The FTA established the TCRP, which was authorized as part of ISTEA and reauthorized by TEA-21, in July 1992. More than 1,500 research problem statements have been submitted, and the TCRP Project Selection and Oversight Committee, comprised of industry representatives, has designated 305 projects and studies to address these problems. More than 1,300 representatives of the transit industry have served on panels that guide TCRP projects, providing a direct channel for promptly disseminating results to those who can apply them in practice. TCRP products include 69 Research Reports, 37 Transit Synthesis Reports, 42 Research Results Digests, 16 Legal Research Digests, 24 Transit IDEA Reports on the development of innovative products and processes, and 9 software products. Over 400,000 copies of these products have been distributed. The TRB, which administers the TCRP, maintains a publications list and description of all TCRP studies on its website: http://www4.national-academies.org/trb/crp.nsf.

National Transit Institute (NTI)

The NTI develops and teaches new methods and techniques to improve transit workforce performance and increase productivity in the workplace. Courses are conducted locally at sites nationwide on a wide variety of subjects, ranging from advanced technology and multi-modal planning to management development and training effectiveness. Transit Trainers Workshops are conducted annually to bring together trainers and human resources specialists from the industry to learn the latest techniques in training and to share training experiences on the job. In addition, the NTI and FTA are working together to develop and present workshops and seminars designed to assist the transit industry in understanding and implementing advanced public transportation systems. Programs on geographic information systems, automatic vehicle location, smart cards, and other innovative technologies are just a few of the topics under development.

Rural Transportation Assistance Program

Rural Transportation Assistance Program funds are allocated to the states, by formula, based on each state's percentage of the total national non-urbanized population. As in the past, states will continue to use this funding primarily for technical assistance and training in support of bus services in non-urbanized areas. This program makes technical expertise available to smaller operators who have limited staff and resources. Some examples are peer problem-solving networks, centralized driver training programs, and standardized bus specifications.

Collectively, programs and projects in these areas will improve customer service, increase the cost-effectiveness of transit assets, and contribute to improved environmental quality, while building the professional capacity of the industry and increasing transit ridership.

Fuel Cell Bus

The transit industry is faced with stringent bus emission standards that are increasingly difficult to meet with diesel technology. Fuel cells offer near-zero emissions and significant reductions in the emission of greenhouse gases, as well as potentially more efficient power generation, improved reliability, and lower maintenance costs.

Building upon a joint FTA and Department of Energy (DOE) test bed program, the FTA's Fuel Cell Transit Bus Program is working with Georgetown University to evaluate two types of fuel-cell technologies for transit bus propulsion: a phosphoric acid fuel cell (PAFC) and a proton-exchange-membrane fuel cell (PEMFC). Under the program, one PAFC 40-foot transit bus and one PEMFC 40-foot bus will be assembled and evaluated. The FTA expects that testing will measure emissions from the 40-foot buses at levels similar to those of the 30-foot bus developed under the joint FTA/DOE program. Moreover, the agency anticipates significant reductions in carbon monoxide emissions. Following the evaluation, the selected fuel-cell technology or technologies will be demonstrated in additional transit buses in partnership with interested transit agencies.

University Transportation Research

Through the RSPA, the FTA currently provides funding to four universities selected as UTCs to perform cutting edge research in transit disciplines and technologies. In addition to producing research results, the program trains graduate students as the next generation of professionals to lead transit research, planning, and operations. (See page 44)

Longer Term Outlook

FTA research and technology program areas are discussed in detail in the *FTA Research and Technology Five-Year Plan.*

Crosscutting themes are continued emphasis on safety and security, energy and operational efficiency, and greatly improved access to mobility for persons with disabilities, elderly persons, and low-income persons.

The FTA will emphasize integration of emerging advanced technologies, such as new vehicle subsystems and ITS, to provide high levels of service and cost-effective system performance. Bus Rapid Transit systems in several forward-looking cities will begin to reap the benefits of this integrated approach and provide high levels of service quality, energy efficiency, and congestion mitigation that will serve as benchmarks for the transit industry and communities everywhere.

Research in Progress

The next section of this report, *Research in Progress*, provides program highlights and descriptive profiles of the 91 research projects undertaken during fiscal year 2001 by the Federal Transit Administration. The projects were undertaken to improve transit security and safety, expand the range of mobility options, foster economic growth, protect the environment, and enable the Federal Transit Administration staff to provide a higher level of citizen-oriented public transit service.

The 91 projects are organized within the program areas of the *FTA Transit Research & Technology Five-Year Plan*—Security and Safety, Equipment and Infrastructure, Fleet Operations, Specialized Customer Services, Policy and Planning, and Professional Capacity Building. Each project entry is profiled separately and includes information on the project objective, funding, investigator, performing organizations, and period of performance.

Our Vision -

Integrated Transportation Technology producing High Quality Mobility into the 21st Century

Our Mission -

Partnering with Industry in Establishing Preeminence in U.S. Transit Technology, Institutions and Customer Services to Increase the Quality and Level of Transit Service

Our Goals –

Security & Safety
Mobility & Accessibility
Growth & Trade
Environmental Protection
Quality Workforce

FTA Research Program Online
http://www.fta.dot.gov/ntl/research/index.html

Homeland Security

2001 Safety & Security Highlights. The end of fiscal year 2001 was a watershed moment in transportation history. It affirmed transportation security as equal in importance to transportation safety and as the top transportation priority. The terrorist events of September 11, 2001, made it clear that the Department of Transportation, including FTA, must put forth a strategy to make transportation more secure and safe to protect the homeland. Thus, the end of fiscal year 2001 marked the beginning of the new transportation Homeland Security strategy--*to ensure the security of the transportation system for the movement of people and goods, and support the National Security Strategy.*

Fiscal year 2001 events guided FTA to move quickly and take a leadership role in support of the Department's Homeland Security strategic goal. The FTA launched an aggressive five-part security initiative to enhance the security of the nation's public transportation systems and help public transportation agencies cope with these new threats. The agency developed and distributed a Safety and Security Toolkit to the transit industry and emergency responders, offered security awareness and training workshops across the country, and redirected resources to the Homeland Security initiative emphasizing the need to reduce the vulnerability of the transportation system and its users to crime and terrorism.

In December 2001, FTA began deploying expert security assessment teams to the 32 largest transit agencies to assess the security gaps in the agencies' assets and make recommendations to reduce the risks to acceptable levels, and to assess the agencies' emergency response plans and the coordination of their emergency response efforts with associated fire, police, and other emergency response agencies. To learn more about the FTA effort, visit Website URL [www.transit-safety.volpe.dot.gov]. FTA's security initiatives will be covered in detail in the FY 2002 report.

In 2001, the FTA Office of Safety and Security published a brochure offering transit agencies a Security Review and Technical Assistance Program, designed to reduce the rate of transit-related crime against patrons, transit employees, and property. The program supports commuter rail, light rail, bus, and paratransit systems, and is scalable to fit a transit agency's needs. Since the establishment of this cost-free, voluntary security assessment program in 1996, more than 66 transit agency security reviews have been conducted in the United States. For additional information on this program, contact the FTA Office of Safety and Security at 202.366.2896

In FY 2001, the FTA continued to partner with the Department of Energy to address terrorist threats by exploring technological advances in the area of chemical detection systems. In addition, the FTA issued a report titled *Standard Protocols for Managing Security Incidents Involving Surface Transit Vehicles,* available on line at [http://transit-safety.volpe.dot.gov]. Approximately 4,000 transit professionals received training on a variety of safety and security subjects at the Transportation Safety Institute.

Drug and Alcohol Management Information System
Project MA-26-5010.2
Funding: $1,000,000 Schedule: October 2000 - September 2001
Performer: Volpe National Transportation Systems Center, Kendall Square, Cambridge, Massachusetts 02142
Investigator: James A. Harrison Phone: 617.494.3450 Fax: 617.494.2902
FTA Project Monitor: Mark Snider, TPM Phone: 202.366.1080 Fax: 202.366.7951
Email [mark.snider@fta.dot.gov]

Description: This ongoing project supports the Omnibus Transportation Employee Testing Act of 1991, which authorized the Department of Transportation to mandate substance abuse management programs in various transportation industries for safety-sensitive employees. FTA published the final drug and alcohol testing regulations for transit employers in February 1994, requiring each grant recipient to maintain records and submit annual reports to FTA summarizing the results of its drug abuse and alcohol misuse prevention programs. Recipients of federal funds under Sections 5307, 5309, and 5311 or Chapter 53 of Title 49 of the United States Code are required to implement drug and alcohol testing programs, and submit annual reports to FTA through the drug and alcohol management information system (DAMIS). These annual reports serve as a primary source for evaluating the effectiveness of federal regulations and for supporting future modifications. This project supports the collection and analysis of reports from grantees, summarizing their test results and publishing an annual report. Data collected under this program are an important factor in FTA decisions concerning audits of drug and alcohol testing programs.

Drug and Alcohol Regulatory Guidance and Updates
Project MA-26-5013.1
Funding: $250,000 Schedule: October 2000 - September 2001
Performer: Volpe National Transportation Systems Center
Kendall Square, Cambridge, Massachusetts 02142
Investigator: Alison Thompson Phone: 617.494.2108 Fax: 617.494.2902
FTA Project Monitor: Vicki Bellet, TPM Phone: 202.366.2780 Fax: 202.366.7951
Email [vicki.bellet@fta.dot.gov]

Description: The FTA rewrote the drug and alcohol regulations and published the new regulations, 49 CFR Part 655, on August 1, 2001. The goal for the transit industry is to achieve a drug- and alcohol-free workforce in the interest of the health and safety of employees and the traveling public. To assist transit agencies in implementing these regulations, the agency will publish in fiscal year 2002 the *Implementation Guidelines for Drug and Alcohol Regulations in Mass Transit*, and a *Best Practices Manual*. Since the guidelines were published in 1994, there have been numerous amendments, interpretations, and clarifications to the drug and alcohol testing procedures and program requirements. To ensure that transit personnel are aware of all such changes, the Office of Safety and Security publishes quarterly the FTA Drug and Alcohol Updates. This project provides for the continued issuance of these Updates as well as for an updated guidelines manual. Currently, more than 6,000 organizations receive these updates.

Drug and Alcohol Testing Compliance Audits
Project MA-90-5005.02
Funding: $1,473,507 Schedule: October 2000 - September 2001
Performer: Volpe National Transportation Systems Center
Kendall Square, Cambridge, Massachusetts 02142
Investigator: James A. Harrison Phone: 617.494.3450 Fax: 617.494.2902
FTA Project Monitor: Mark Snider, TPM Phone: 202.366.1080 Fax: 202.366.7951
Email [mark.snider@fta.dot.gov]

Description: Audits are conducted to assist transit agencies in achieving a drug- and alcohol-free workforce in the interest of the health and safety of transit employees and the traveling public. This project provides ongoing support for the Drug and Alcohol Testing Compliance Audits program to ensure grantees' compliance with federal drug and alcohol testing regulations. Compliance audits are conducted on sites of transit agencies receiving federal funds and are based on a comprehensive review process, covering every aspect of an agency's drug and alcohol testing program. Audit findings and lessons learned are summarized periodically, published, and distributed to the transit community. Additional activities include technical assistance and training which are conducted at various locations across the country. Under the Omnibus Transportation Employee Testing Act passed by Congress in 1991, FTA is required to establish regulations for drug and alcohol testing of transit employees performing safety-sensitive functions.

Fire Safety Materials Testing
Project MA-26-5015.1
Funding: $100,000 Schedule: October 2000 - September 2001
Performer: Volpe National Transportation Systems Center
Kendall Square, Cambridge, Massachusetts 02142
Investigator: James A. Harrison Phone: 617.494.3450 Fax: 617.494.2902
FTA Project Monitor: Roy Field, TPM Phone: 202.366.0197 Fax: 202.366.7951
Email [roy.field@fta.dot.gov]

Description: In 1984, the FTA published recommended practices for rail transit vehicle materials selection containing tests and performance criteria for seat components (e.g., upholstery, cushions, shrouds, and frames), panels (e.g., walls and ceilings, partitions, windscreens, windows, light diffusers, and HVAC ducting), thermal and acoustical insulation, floor structure and covering, elastomers, exterior end caps, and interior and exterior box covers. In 1993, the agency published similar recommended practices for transit buses and vans. This research project will evaluate the latest fire safety technology to update the FTA rail transit, transit bus and van recommended practices for materials selection and develop fire safety standards for the performance and testing of interior materials. Use of these guidelines in the selection of materials for transit vehicles is intended to reduce fire incidents and costly property damage and casualties.

Operation Lifesaver Program
Project VA-26-5008
Funding: $200,000 Schedule: May 2001 - May 2002
Performer: Operation Lifesaver, Inc.
1420 King Street, Suite 401, Alexandria, Virginia 22314
Investigator: Gerri Hall Phone: 703.739.1065 Fax: 703.519.8267
FTA Project Monitor: Iyon U. Lyles, TPM Phone: 202.366.2010 Fax: 202.366.7951
Email [iyon.lyles@fta.dot.gov]

Description: Historically a nationally recognized safety education program, Operation Lifesaver has focused on grade crossing safety and trespasser prevention programs for intercity freight railroad. However, the current interest in the growing number of urban area light rail system grade crossings and trespasser incursions generated the need for a transit-focused program. This project will enable Operation Lifesaver to develop and implement a specially designed grade crossing safety and trespasser prevention program for urban areas with new expanded light rail systems.

Operation Respond Institute
Project DC-26-5009
Funding: $100,000 Schedule: September 2001 - February 2002
Performer: Operation Respond Institute, Inc.
401 Constitution Avenue, NE, Washington, DC 20002
Investigator: Dr. James W. Boone Phone: 202.548.0935 Fax: 202.906.3133
FTA Project Monitor: Laura Mizner, TPM Phone: 202.366.6824 Fax: 202.366.7851
Email [laura.mizner@fta.dot.gov]

Description: Emergency responders to rail passenger accidents and incidents need accurate and timely location information. This project supports the efforts of the Operation Respond Institute to enhance the safety of commuter rail and transit system operations by deploying rail passenger emergency location and access mapping software along commuter and light rail corridors. The Operation Respond Institute is the owner and developer of the Operation Respond Emergency Information System—an emergency access and mapping software. This access and mapping software allows emergency responders to pinpoint and reach a rail passenger train or subway car involved in an accident or incident, by combining rail landmark information with public road and infrastructure maps. Such information, coupled with the rail passenger car schematics included in the software, allows responders to quickly reach the scene and perform emergency services. Operation Respond is a not-for-profit industry-government partnership established to provide lifesaving information on hazardous materials and rail passenger rescue directly from participating railroads and motor carriers to first responder police and fire personnel at the accident scene.

Safety and Security Clearinghouse
Project MA-26-5012.1
Funding: $100,000 Schedule: October 2000 - September 2001
Performer: Volpe National Transportation Systems Center
Kendall Square, Cambridge, Massachusetts 02142
Investigator: Alison Thompson Phone: 617.494.2108 Fax: 617.494.2902
FTA Project Monitor: Vicki Bellet, TPM Phone: 202.366.2780 Fax: 202.366.7951
Email [vicki.bellet@fta.dot.gov]

Description: Information on transit safety and security provides the agency and the transit industry with the tools needed to identify key safety and security problems. The Safety and Security Clearinghouse serves as a storehouse of information and an ongoing focal point for published materials and resources currently available on the subject of transit safety and security and related technologies. The material is made available, upon request, to assist state and local transit agencies to measurably improve the safety and security of transit services. This clearinghouse function enables FTA to dialogue with transit safety and security customers, to better understand customer needs, as well as provide a quick response mechanism for information dissemination. Customer assistance is provided in the form of guidelines, reports, expert advice, referrals to experts when necessary, and access to the FTA website.

Safety Management Information System
Project MA-26-5016.1
Funding: $400,000 Schedule: October 2000 - September 2001
Performer: Volpe National Transportation Systems Center
Kendall Square, Cambridge, Massachusetts 02142
Investigator: James A. Harrison Phone: 617.494.3450 Fax: 617.494.2902
FTA Project Monitor: Carole Ferguson, TPM Phone: 202.366.0219 Fax: 202.366.7951
Email [carole.ferguson@fta.dot.gov]

Description: This project provides ongoing support for the maintenance, operation, and evolution of the Safety Management Information System (SAMIS)—a mandatory reporting requirement of the FTA National Transit Database. The collection and analysis of safety and security data provides both the agency and the industry with a basis for identifying key safety and security problems. SAMIS data collection has been expanded recently to include highway-rail grade crossing accidents, cost data, and security data. This project also supports the annual publication of the SAMIS report, which analyzes and displays normalized and trend data along with basic statistical data. The data is used in FTA decisions relating to the conduct of security audits and state oversight audits; in reports to Congress, the Office of the Secretary, and the Office of Management and Budget; and in assisting transit professionals in the development of system safety and security plans. In FY 2001, SAMIS was reviewed and modifications were made to better define transit related safety and security issues and to improve data timeliness and accuracy. In response to the National Transportation Safety Board recommendations, a stand alone effort focused on the type of causal data transit systems collect, and how these data can be used to prevent future accidents. SAMIS is the FTA Safety and Security statistical database.

State Safety Oversight Compliance
Project MA-90-5006.2
Funding: $800,000 Schedule: October 2000 - September 2001
Performer: Volpe National Transportation Systems Center
Kendall Square, Cambridge, Massachusetts 02142
Investigator: James A. Harrison Phone: 617.494.3450 Fax: 617.494.2902
FTA Project Monitor: Roy Field, TPM Phone: 202.366.0197 Fax: 202.366.7951
Email [roy.field@fta.dot.gov]

Description: Federal statute requires the FTA to assess State Safety oversight agencies. This project provides ongoing support for the implementation of 49 CFR Part 659, State Safety Oversight for Rail Fixed Guideway Systems, that requires establishment of an oversight agency at the state level—thus, creating a state-managed oversight program for rail transit safety and security. Oversight agencies, in turn, must require Rail Fixed Guideway Systems to develop and implement System Safety and Security Program Plans, conduct three-year reviews, identify and eliminate hazards, impose design requirements or management controls to prevent mishaps, require systems to perform internal safety audits, and require corrective action plans. In addition, the state oversight agency must oversee accident investigations and determine causal factors. This project provides for refinement of the current audit process; continuation of field audits; analysis and policy formulation including FTA/FRA joint track issues, new starts, and causal data; documentation and technical information dissemination; and database development to track compliance and analysis activities. See 1999 State Safety Oversight Report on the Internet URL [http://www.transit-safety.volpe.dot.gov/safety/Oversight.asp]

Transit Bus Safety Oversight Program
Project OH-26-5001
Funding: $540,000 Schedule: August 2000 - September 2001
Performer: Battelle Memorial Institute, Columbus Laboratories
505 King Avenue, Columbus, Ohio 43201-2693
Investigator: David P. Wagner Phone: 614.424.7381 Fax: 614.424.5069
FTA Project Monitor: Amy Jernigan, TPM Phone: 202.366.1639 Fax: 202.366.7951
Email [amy.Jernigan@fta.dot.gov]

Description: In response to the growing concerns of Congress, National Transportation Safety Board, and FTA regarding the potential for catastrophic accidents involving bus transit systems, the FTA Office of Safety and Security is examining the state of public transit bus safety. Currently, state oversight of transit operations ranges from non-existent to highly perfected safety programs supported by state legislation and administered by state level agencies. Federal regulations and oversight exist for rail fixed guideway transit systems (FTA) and commuter rail operations (Federal Railroad Administration), but there is no overall federal regulation requiring oversight for transit bus safety. This research project will examine in detail the state of transit bus safety practices in the industry, provide technical assistance, and actively work with the industry to improve bus safety and develop a model transit bus safety program inclusive of the oversight function.

Transit Safety and Security Website
Project MA-26-5008.2
Funding: $100,000 Schedule: October 2000 - October 2001
Performer: Volpe National Transportation Systems Center
Kendall Square, Cambridge, Massachusetts 02142
Investigator: Alison Thompson Phone: 617.494.2771 Fax: 617.494.2961
FTA Project Monitor: Vicki Bellet, TPM Phone: 202.366.2780 Fax: 202.366.7951
Email [Vicki.bellet@fta.dot.gov]

Description: Access to safety and security information on all types of transit is needed by planners, managers, and federal officials to assess safety and security programs and capital program requirements. This project supports the ongoing management and operation of the transit safety and security Internet website. The website is designed to provide the transit industry a central communication point for information on transit safety and security. The website has been undergoing significant enhancements, including addition of links to other relevant websites within the Department of Transportation. Information currently available to website users include: training opportunities, calendar of workshops and meetings, DOT and FTA hearings, regulations, research and statistical reports, and links to other resources. The FTA Safety & Security Website can be accessed at [http://transit-safety.volpe.dot.gov/].

Transit Security Audits
Project CA-90-5004
Funding: $455,000 Schedule: October 2000 - October 2001
Performer: Aegir Systems, 2001 North Solar Drive, Suite 175
Oxnard, California 93030-2651
Investigator: Jim Shean Phone: 805.485.4888 Fax: 805.485.4235
FTA Project Monitor: Carole Ferguson, TPM Phone: 202.366.0219 Fax: 202.366.7951
Email [carole.Ferguson@fta.dot.gov]

Description: Crime prevention is primarily a local responsibility, regardless of whether the crime occurs in the street or on a transit system. The FTA role is to provide capital and technical assistance and training to transit agencies in support of mitigating crime. Until recently, FTA exercised limited security oversight through Triennial Reviews of local transit agency operations and contractor supported project management oversight of large construction and rehabilitation projects. However, transit security is now a national issue and additional resources are necessary to focus federal attention on the issue. Under this ongoing program, voluntary systematic reviews are conducted to assess existing security practices of public transit agencies. Transit security audits are conducted to reduce the vulnerability of transit systems, including intentional harm to the system, employees, and users. FTA invites requests from transit agencies for onsite reviews of security measures and problems. In FY 1999, the audit was expanded to include participation by bus transit systems. These reviews utilize the systems approach in order to enable FTA to assist transit systems that manifest serious adverse security trends.

Transit Security Audits
Project PA-90-5004
Funding: $455,000 Schedule: October 2000 - October 2001
Performer: Milligan and Company, LLC
105 North 22nd Street, Second Floor, Philadelphia, Pennsylvania 19103
Investigator: Jim Buckley Phone: 215.496.0100 Fax: 215.496.0980
FTA Project Monitor: Carole Ferguson, TPM Phone: 202.366.0219 Fax: 202.366.7951
Email [carole.Ferguson@fta.dot.gov]

Description: Crime prevention is primarily a local responsibility, regardless of whether the crime occurs in the street or on a transit system. The FTA role is to provide capital and technical assistance and training to transit agencies in support of mitigating crime. Until recently, FTA exercised limited security oversight through Triennial Reviews of local transit agency operations and contractor supported project management oversight of large construction and rehabilitation projects. However, transit security is now a national issue and additional resources are necessary to focus federal attention on the issue. Under this ongoing program, voluntary systematic reviews are conducted to assess existing security practices of public transit agencies. Transit security audits are conducted to reduce the vulnerability of transit systems, including intentional harm to the system, employees, and users. FTA invites requests from transit agencies for onsite reviews of security measures and problems. In FY 1999, the audit was expanded to include participation by bus transit systems. These reviews utilize the systems approach in order to enable FTA to assist transit systems that manifest serious adverse security trends.

Transportation Safety Institute
Project OK-26-5002.2
Funding: $1,300,000 Schedule: October 2000 - October 2001
Performer: Transportation Safety Institute
6500 South MacArthur Boulevard, Oklahoma City, Oklahoma 73125-5050
Investigator: James Lopez Phone: 405.954.9268 Fax: 405.954.0367
FTA Project Monitor: Edith Rodano, TPM Phone: 202.366.0191 Fax: 202.366.7951
Email [edith.rodano@fta.dot.gov]

Description: The Transportation Safety Institute conducts transit safety and security training to improve the operational safety of transit systems and personal security of the transit workforce and traveling public. This project enables the Transportation Safety Institute to conduct 34 different transit courses in more than 270 offerings, including--Transit Rail System Safety, Safety Management, Transit Rail and Bus Accident Investigation, Alternative Fuels, Transit System Security, Transit Explosives Incident Management, Fatigue Awareness, System Safety, Bus Casualty Extrication, Threat Management and Emergency Response to Bus Hijacking, and Response to Chemical, Biological and Nuclear Transit Incidents. These courses comprise the core curriculum of the Institute's transit safety and security training, attended annually by more than 4,600 transit industry employees at a per capita cost of $279. Since its inception in 1976, the Institute has trained nearly 70,000 students. Most of these safety and security courses were developed as part of the FTA integrated approach to training, and many transit safety and security professionals are involved as associate instructors. The curriculum supports the FTA mission and advances the state-of-the practice. URL [http://www.tsi.dot.gov/]

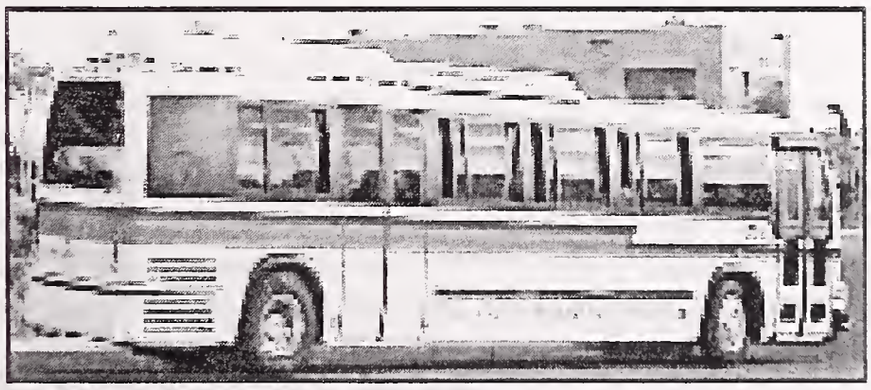
Equipment and Infrastructure

2001 Bus Highlights. *Transit is shaping American Cities by moving towards a cleaner, more secure and efficient way of transporting people through technology.*

FTA activities in the Equipment and Infrastructure area seek to maximize the payoff from capital investments by introducing, new, safe, reliable, and cost-effective vehicle, system, and facility technologies. In FY 2001, ongoing efforts within the FTA Research and Technology Program continued to pursue advancement in technologies--

- Bus Engines Designed for Clean Fuels—Low-Sulfur Diesel, Hydrogen, and Renewable Energy Sources,
- Advanced Propulsion Systems/Technologies—Hybrid Electric, Fuel Cell, Battery Electric, and Innovative External Power Sources—to answer challenges faced by current transit operators, such as vehicle range, fuel economy, emissions, and safety, and
- Advanced Systems and Controls—Safety Technologies under the DOT Intelligent Vehicle Initiative, and Radio-Based Communication and Control Systems for Rail Transit.

FTA Fuel Cell Transit Bus Program



Generation II Fuel Cell Transit Bus
Environmentally-Friendly & Fuel Efficient

The FTA Fuel Cell Transit Bus Program at Georgetown University developed and introduced the first and only urban transit bus powered by a liquid-fueled proton exchange membrane fuel cell at the California Fuel Cell Partnership Facility in December 2001. The Generation II Bus (2001), powered by proton exchange membrane fuel cells, represents a significant leap ahead of the 1998 Generation I Fuel Cell Bus, producing twice the power. Planning is underway for this vehicle to be operationally tested and demonstrated by transit agencies in California. Website URL [http://fuelcellbus.georgetown.edu/gen2.cfm].

Currently, the FTA and Georgetown University are engaged in a cooperative agreement to develop a commercially viable fuel cell transit bus to address and resolve environmental and fuel

efficiency concerns of current transit bus propulsion systems, to reduce U.S. dependence on petroleum fuels, and to advance the introduction of fuel cell power systems for transportation. When completed, the multi-year fuel cell research program will provide FTA and the U.S. industry with the preliminary engineering and development activities necessary for domestic and commercial production of a fuel cell powered, full-sized transit bus.

The Fuel Cell Bus Initiative (FCBI)--a national program led by the FTA currently under development with the advanced transportation technology consortia, transit, hybrid electric drive, clean fuels, and fuel cell communities—is national in scope, neutral in fuel choice, and focused on transit buses. It includes: a national demonstration program; data collection, evaluation, and information sharing; training; and research and development activities. FTA recognizes that hybrid electric and clean fuels technologies provide critical pathways to fuel cell vehicles and include research and development efforts to address energy storage, power electronics, systems integration, onboard transit vehicle fuel storage, fuel reformation and infrastructure needs. The integral infrastructure needs for fuel cell transit buses are being closely coordinated with the Department of Energy (DOE) program for establishing fuel infrastructure for fuel cells, not only for transportation but also for stationary and residential power generation. The FTA Fuel Cell Program is in harmony with the broader DOE strategy for fuel cell commercialization and will be closely coordinated with that effort. Key stakeholder have responded positively in preliminary discussions of the program's scope and scale. Fuel cell power, based on hydrogen rather than petroleum hydrocarbons, is one of the most promising clean energy technologies of the 21st century.

Hydrogen Fuel Cell Demonstration Project activities of the XCELLSIS Zebus (zero emissions bus) performance at SunLine Transit Agency in Thousand Palms, California, were published in the September 2001 Final Report and submitted to FTA. The report summarizes the demonstration activities, including fueling, training, operating, and testing of this prototype vehicle. It includes data relating to Zebus performance along with the successes achieved beyond the technical realm. The study concludes that the project was very useful in establishing operating parameters and environmental testing in extreme heat conditions and in transferring technology to a transit agency. Copy available from FTA [research @fta.dot.gov]

Hydrogen Fuel Cell Engines and Related Technologies is the title of a report (2001) that documents the first training course ever developed and made available to the transportation community and general public on the use of hydrogen fuel cells in transportation. The Hydrogen Fuel Cell course is designed to train a new generation of technicians in gaining a more complete understanding of the concepts, procedures, and technologies involved with hydrogen fuel cell use in transportation. The program starts at the high school level and progresses through a rigorous program that includes instruction in electronics, engine performance, alternative fuels, and advanced power train technologies. Copy available from FTA [**research @fta.dot.gov**].

The Electric Transit Vehicle Institute (ETVI) is supporting federal efforts to encourage technology transfer, technical assistance, and increased communication and dissemination of information on electric and hybrid-electric vehicles for healthier community living. The non-profit organization has assisted cities across the United States—from Tempe, Arizona, to Portland, Maine, to Miami Beach—to move from diesel to electric and hybrid technology. Each

year, the ETVI demonstrates electric vehicle technology at events across North America and participates in international transit conferences, Earth Day celebrations, and Clean Air Symposia, and other events to build awareness of the benefits of clean fuel vehicles.

Altoona Bus Testing Program. The FTA New Model Bus Testing Program, conducted at the Altoona Bus Testing and Research Center in Altoona, Pennsylvania, is improving the nation's bus fleet. The Center tests buses for safety, structural integrity, performance, maintainability, noise, and fuel economy, as well as emissions and brake performance. In 2001, FTA expanded the capacity of the Center to test BRT and other advanced technology transit buses, advanced the construction of a BRT test track, and developed new test protocols for electric and hybrid electric vehicles. Since the first bus was tested in January 1990, testing to date has resulted in more than 5,000 reported malfunctions. By identifying design problems before buses are placed in revenue service, many costly fleet failures and safety problems have been averted.

Clean Fuel Vehicle for National Park Service. Transit agencies as well as the National Parks continue to pursue clean fuel vehicle options. Buses powered by alternative fuels such as compressed and liquefied natural gas have been incorporated into transit fleets in an effort to reduce transit bus emissions, with approximately 20 percent of all new bus orders specifying natural gas. Hybrid-electric vehicles, which can greatly reduce vehicle emissions without costly infrastructure changes, are now emerging as the "way to go" in transit. Orders for hybrid-electric powered buses using conventional or low sulfur diesel fuels are currently numbering in the hundreds. In FY 2001, the FTA provided technical assistance to the National Park Service for implementing clean fuel technologies for visitor transportation systems. In addition, FTA conducted information exchange and technology transfer activities on clean fuels by participating with the American Public Transportation Association's Clean Fuel Technology Committee to develop the bus emissions testing program, initiated in FY 2002.

Zinc-Air Fuel Cell Transit Bus. Zinc-air fuel cell technology offers a potential high energy and lighter weight alternative to existing lead acid batteries. During the summer of 2001, the first zero-emission zinc-air transit bus completed performance testing at test sites in New York State as part of a project funded by FTA. In November 2001, the bus was demonstrated on the streets of Las Vegas, Nevada. In March 2002, the bus made another journey to Capitol Hill in Washington, DC. Pictures of the Capitol Hill Zinc Air Fuel Cell Bus Demonstration are available online at Website URL [http://www.electric-fuel.com/ev/index.html]. The zinc-air transit bus was also demonstrated at the American Public Transportation Association Expo 2002 in Las Vegas, Nevada, September 25.

The Zinc Air Fuel Cell Bus Demonstration project, sponsored by FTA, is a multi-phase effort to demonstrate the proof-of-concept of Zinc Air battery technology for a 40-foot transit bus. Under the current Phase II effort, funded at $1.5 million, participants are Electric Fuel Corporation (developer of the battery technology), General Electric Corporate Research and Development and the Regional Transit Commission of Clark County, Nevada. Improvements in the main zinc-air fuel cell combined with the addition of ultra capacitors increased the bus's range from 101 to 127 miles, a 25 percent increase. This drive was the last test drive planned under Phase II of the Zinc-Air All Electric Transit Bus Program with FTA. Website URL [http://www.electric-fuel.com/evnews/021807.shtml].

Altoona Bus Testing Program
Project PA-03-7002.02 Schedule: October 2001 - October 2002
Funding: $3,000,000
Performer: Pennsylvania Transportation Institute, The Pennsylvania State University
Research Office Building, University Park, Pennsylvania 16802-4710
Investigator: Bohdan T. Kulakowski Phone: 814.865.1891 Fax: 814.865.3039
FTA Project Monitor: Marcel Belanger, TRI Phone: 202.366.0725 Fax: 202.366.3765
Email [marcel.belanger@fta.dot.gov]

Description: The FTA New Model Bus Testing Program is designed to promote production of better transit vehicles and components, and to ensure that transit customers purchase safe vehicles able to withstand the rigors of transit service. The program aims to ensure that deficiencies in new bus models are corrected before entering revenue service, saving transit agencies and tax payers millions of dollars over the life of each bus model. Testing is performed by the Vehicle Systems and Safety Program staff at the Altoona Bus Testing and Research Center in Altoona, Pennsylvania. The Center currently handles up to eight buses at one time. The FTA funds 80 percent of the testing; the manufacturer covers the remaining 20 percent. Although most of the tests are completed in Altoona, the durability bus test is conducted at Pennsylvania Transportation Institute of Penn State University, which operates the Bus Testing Program under an agreement with FTA. Under this project, bus testing requirements will be carried out as defined in Bus Testing Regulations. The law specifies that no new bus model may be acquired, using federal funds, unless it has been tested at the bus testing facility. The testing program provides bus manufacturers and transit agencies invaluable information that is used to improve the quality and safety of transit buses. Currently, the Center tests buses for safety, structural integrity, performance, maintainability, noise, and fuel economy. Emissions and brake testing are now included. Test results are compiled in a comprehensive report available to the industry and the public. Since the first bus was tested in January 1990, testing to date has resulted in more than 5,000 reported malfunctions. By identifying design problems before buses are placed in revenue service, many costly fleet failures and safety problems have been averted. Website URL [http://www.vss.psu.edu/fta].

Composite Materials Development for Transit Bus
Project AL-26-7001
Funding: $923,264 Schedule: April 2001 - September 2002
Performer: Southern Research Institute
757 Tom Martin Drive, Birmingham, Alabama 35211
Investigator: George Husman Phone: 205.581.2977 Fax: 205.581.2414
FTA Project Monitor: Quon Y. Kwan, TRI Phone: 202.366.6824 Fax: 202.366.3765
Email [quon.kwan@fta.dot.gov]

Description: The Southern Research Institute will conduct research activities to develop lighter weight, lower cost, higher performing composite materials for use in transit buses and other mass transit applications. The research team intends to develop thermoplastic composite materials and product forms, as well as fabrication methods for molding components from thermoplastic composite materials for use in buses and other mass transit applications. During the course of development of these lightweight composite materials, Southern Research Institute will

document results of performance tests (namely the durability, impact resistance, and fire safety of the materials) and analyze the impacts on costs, in particular, manufacturing and life cycle costs. Lightweight composite materials are low-cost, high performing materials, providing greater body strength and greater vehicle life without corrosion, and significantly reduce wear and tear. Composites are needed to support improvements in technology for mobility, as well as the operational efficiency of existing transit vehicles. This is a congressionally directed project.

Electric Transit Vehicle Institute
Project TN-26-7002
Funding: $500,000 Schedule: February 2001 - December 2002
Performer: Electric Transit Vehicle Institute
1617B Wilcox Boulevard, Chattanooga, Tennessee 37406
Investigator: John Powell Phone: 423.622.7021 Fax: 423.622.0744
FTA Project Monitor: Marcel Belanger, TRI Phone: 202.366.0725 Fax: 202.366.3765
Email [marcel.belanger@fta.dot.gov]

Description: The U.S. Department of Transportation, through FTA, has a significant interest in the advancement of electric and hybrid electric vehicle technology in transit applications. On-going efforts within FTA to advance fuel cells, alternative fuels and electric technology provide the foundation for moving towards a cleaner and more efficient way of transporting the transit riding public. One of the main challenges within FTA is to harness and transfer these results to industry more effectively. This project addresses the challenge. It supports federal efforts to encourage technology transfer, technical assistance, and increased communication and dissemination of information on electric and hybrid electric vehicles. The goals of this electric transit vehicle project are as follows: (1) to improve the understanding of, interest in, and use of electric and hybrid-electric buses through the implementation of a coordinated information and communications dissemination program; (2) to provide professional and technical assistance to Chattanooga Area Regional Transportation Authority in the deployment of electric vehicles; and (3) to develop a series of testing protocols for electric and hybrid-electric buses. The Electric Transit Vehicle Institute is a nonprofit organization dedicated to increasing the use of electric and hybrid-electric buses through technology transfer and outreach. This is a congressionally directed project. Website URL [http://www.etvi.org/].

Georgetown Fuel Cell Transit Bus Program
Project DC-26-7130
Funding: $4,803,027 Schedule: March 2001 - March 2003
Performer: Georgetown University
2115 Wisconsin Avenue, NW, Suite 602, Washington, DC 20007
Investigator: James T. Larkin Phone: 202.687.7361 Fax: 202.687.4507
FTA Project Monitor: Shang Hsiung, TRI Phone: 202.366.0241 Fax: 202.366.3765
Email [shang.hsiung@fta.dot.gov]

Description: The Fuel Cell Bus Initiative is a national program led by the Federal Transit Administration and under development with the transit and fuel cell communities to coordinate, consolidate, and rationalize the diverse efforts in fuel cell transit buses to enhance the acceleration of its commercial viability. The objective of the FTA Fuel Cell Transit Bus

Program with Georgetown University (GU) is to conduct a program for the development of U.S. produced fuel cell propulsion systems for transit buses. When completed, the program will deliver the preliminary engineering and development activities necessary for the domestic, commercial production of fuel cell powered, full-sized transit buses. For FY 2001, funding is provided to support the design and construction of an Intermodal Fuel Cell Transit Bus Maintenance Facility at GU campus. The facility will support a commercially viable domestic fuel cell transit bus--designed and built under the FTA Fuel Cell Transit Bus Program. Six full-size, 50-foot maintenance bays will be built for fuel cell buses, equipped with lubrication systems, parts cleaning area, and safety equipment. The facility will house GU fuel cell buses, serve as a training and maintenance facility for transit operators, and provide a national model for fuel cell transit bus operation and maintenance. Fuel cell is one of the most promising clean energy technologies of the 21st century—environmentally friendly, reliable, quiet, and highly efficient power system. This is a congressionally directed project. GU Website URL [http://fuelcellbus.georgetown.edu/]

WestStart-CALSTART Consortium Electric Vehicle Program
Project CA-26-7021.01
Funding: $2,977,280 Schedule: September 2001 - September 2003
Performer: Weststart-CALSTART
2181 East Foothill Blvd, Passadena, California 91107
Investigator: Michael Gage Phone: 616.744.5600 Fax: 616.744.5610
FTA Project Monitor: Shang Hsiung, TRI Phone: 202.366. 0241 Fax: 202.366.3765
Email [shang.hsiung@fta.dot.gov]

Description: WestStart-CALSTART (WestStart) is a non-profit, advanced transportation organization and leader in developing programs and plans that foster clean fuel vehicle technology development and deployment. It is made up of over 200 companies involved in electric, hybrid electric, natural gas, and intelligent transportation systems fields. WestStart serves as a catalyst for development of a globally competitive, environmentally friendly, and United States–based advanced transportation technology industry. Since 1992, FTA has partnered with WestStart to develop, demonstrate, and deploy electric vehicle technologies and transit enhancing services to improve transportation services and operations. This project supports WestStart continuing drive for clean mobility, clean solutions, and advanced technologies for transportation. It includes support for the Clean Mobility Centers, transit facilities designed to help commuters, downtown workers, and residents make clean efficient trips around the city. Under this project, WestStart continues development and demonstration of electric vehicle technologies that reduce emissions and improve transportation services, such as the ultracapacitor--an energy storage system that improves the performance, extends the range, and lowers the cost of electric vehicles. WestStart provides support to the transit industry in the form of technology assessment, strategic partnering, and programs and information dissemination that foster clean fuel vehicle technology development and deployment. This is a congressionally directed project. Website URL [http://www.weststart.org/].

Equipment and Infrastructure
Continued

2001 Rail Technology & Systems. *Ongoing efforts to accelerate the innovative process and application of new technology are closing the gap between travel demand and system capacity, and creating a more efficient and cost-effective way of transporting the traveling public.*

Urban Maglev –a revolutionary approach for transportation. In FY 2001, several projects were funded under the FTA *Low Speed Urban Magnetic Levitation Transit Technology Development* (Urban Maglev Program) to perform research and development of magnetically levitated low-speed vehicle technology for urban passenger transport in the United States. Low-speed trains are quiet trains designed for urban transit with service speeds to about 100 mph, can turn tight corners, have superior hill climbing ability in all weather, and are reliable with few moving parts. There is no vibration. Each type of Maglev system requires propulsion as well as levitation.

The Colorado Urban Magnetic Levitation Project is one of several projects currently underway to conduct research and development of magnetic levitation technology for use in urban transit. More powerful than an ordinary locomotive and expected to climb mountains without losing traction, the Segmented Rail Phased Induction Motor (SERAPHIM)—a new type of linear motor developed by Sandia National Laboratories—will be sized and tested for the Colorado Urban Maglev transport system. The system runs off an electric charge in the track and can handle grades as steep as 8 percent—nearly three times as steep as conventional trains can climb. For Colorado, this motor appears to be the best choice for the curves and steep grades in the mountainous I-70 corridor area. SERAPHIM Website URL [http://www.sandia.gov/seraphim/index.htm]. Colorado Intermountain Fixed Guideway Authority Website URL [http://www.cifga.com/info/mo_factoid_1.asp?FtID=6 - *FdID*_23].

The Low-Speed Urban Maglev Technology Development Project, being developed by General Atomics Corporation (GA), involves an entirely passive, permanent magnet levitation system, with an efficient linear synchronous motor powering the guideway to provide propulsion. The system represents refinements that evolved from the Maglev technologies developed by the United States, Germany, Japan, and Korea over the last three decades. The GA Urban Maglev system offers many benefits, including the ability to operate in challenging terrain with steep grades and tight turns, all-weather operation, low maintenance, and rapid acceleration. Modular construction also allows easy system expansion. The Maglev vehicle glides silently on an elevated guideway 6 m (20 ft) or more above at-grade traffic. In February 2001, GA announced the progress being made on development of the proposed concept for the FTA Low-Speed Urban Maglev Program online [http://www.ga.com/atg/html/maglev.html]. In March 2002, GA published an overview of the progress made during the 18 months of the program in the report titled *Low Speed Maglev Technology Development Program.* Website URL [http://groups.yahoo.com/group/UrbanMaglev/files/GA-A23928.pdf].

MagneMotion Urban Maglev System. MagneMotion intends to develop a key Maglev technology for future implementation in transportation systems serving traffic-congested urban areas. It is developing a Maglev system that features speeds up to 101 mph, a minimum turning radius of 18.2 m (60 feet) and a non-contacting suspension with a 20 mm magnetic gap. A principal element of the MagneMotion Urban Maglev system is the use of bus-size vehicles that can operate with short headway under automatic control. The system is capable of transporting up to 12,000 passengers per hour per direction. By using the company's long-stator Linear Synchronous Motor (LSM) technology each vehicle can be propelled with accelerating and decelerating forces up to 0.25 g and can achieve top speeds in excess of 100 mph. The combination of high acceleration, high speed and short headways is not possible with legacy transit systems that depend on wheels for traction. MagneMotion has constructed an engineering prototype that uses full size magnets and suspension rails, and has a mass adjustable in the range 0.7 to 1.3 Mg. The guideway is 6 meters (20 feet) long. The levitation and propulsion systems are operational and testing is underway to verify that the performance matches the design objectives. A final report with experimental data and detailed cost analysis is expected in 2002. Website URL [http://www.magnemotion.com/news/press/main.shtml]

MAGLEV 2000 of Florida (M2000) will research and demonstrate the feasibility of a superconducting electrodynamic suspension (repulsive force) technology based on the concept of Drs. Gordon Danby and James Powell, who first pioneered the concept of magnetically levitated transport based on superconducting magnets in 1966. The magnetic levitation system concept is based on superconducting magnets that propel vehicles along a guideway. The clearance gap between vehicle and guideway is 6-8 inches. Large gaps improve safety, decrease construction costs, and reduce sensitivity to ground settling and earthquakes. AC current powers the magnets, allowing cost-efficient, safe, consistent high speed operation up to 100 mph. M2000 also proposes modular construction of vehicle guideways with prefabricated composite tubular box beams, piers and footings that can extend the life time of the system to 100 years with nominal maintenance. A 20-mile (32 km) demonstration is being planned that would connect the Kennedy Space Center with Cape Canaveral. Website URL [http://faculty.washington.edu/jbs/itrans/ammaglev.htm]

Infrastructure Highlights. In FY 2001, the FTA initiated a safety risk assessment of the communication-based train control system being deployed at the San Francisco Bay Area Rapid Transit District and at the New York City Transit. In addition, FTA published the revised and updated edition of the document titled *Quality Assurance and Quality Control Guidelines.* The guidelines incorporate the most current theories, best practices, and quality management systems, provide an overview of quality in capital projects, and serve as an up-to-date resource for local transit agencies and others undertaking a major transit capital project. Available online URL [http://www.fta.dot.gov/office/program/qaqc/index.html].

In FY 2001, FTA partnered with the FHWA to develop a comprehensive *Tunnel Management System Guide* for both highway and rail transit tunnels. The Guide will offer state highway, rail transit, and tunnel authorities guidance and procedures for evaluating tunnel conditions; provide early warning assessments of structural, safety and other deficiencies; and assist in the planning of corrective and preventive actions for rail transit tunnels and related systems

The Urban Magnetic Levitation Transit Technology Development Program is funded under Section 3015 of the Transportation Equity Act for the 21st Century (TEA-21). The Federal Transit Administration administers Federal funding for this project. Since this is a cost share program, the development team provides 20 percent non-federal matching funds.

Projects funded under the FTA Urban Maglev Program are undertaken in three discrete phases, which consist of: (1) Evaluation of Proposed System Concept, (2) Prototype Subsystems Development, and (3) System Integration and Deployment Planning.

Maglev technology is a revolutionary approach to transportation. The vehicle is propelled by a linear induction motor along the track; trains are lifted and propelled by magnetic forces without wheel-rail contact. Maglev is a 21st century transport system--noiseless, vibration free, energy efficient, and environmentally-friendly

Colorado Urban Magnetic Levitation Transit Technology Development Program
Project CO-26-7002
Funding: $4,242,000 Schedule: August 2001 - March 2003
Performer: Colorado Department of Transportation
4201 E. Arkansas Avenue, Denver, Colorado 80222
Investigator: Richard Griffin Phone: 303.757.9266 Fax: 303.757.9727
FTA Project Monitor: Quon Y. Kwan Phone: 202.366.6824 Fax: 202.366.3765
Email [quon.kwan@fta.dot.gov]

Description: The FTA Urban Maglev Program is conducting research and development of magnetically levitated low speed vehicle technology (Maglev) for urban passenger transport in the United States. In FY 2001, the Colorado Department of Transportation (CDOT) partnered with the Colorado Intermountain Fixed Guideway Authority (the state planning agency), Sandia National Laboratories, and Maglev Transit Group to conduct research and development of the best Maglev public transport system (or set of sub-systems) for the mountainous I-70 corridor area, between the Denver International Airport and the Eagle County Regional Airport in Gypsum. Currently under consideration for the Colorado Maglev transport system is the Segmented Rail Phased Induction Motor (SERAPHIM)—a new type of linear motor developed by Sandia National Laboratories. More powerful than an ordinary locomotive and expected to climb mountains without losing traction, the SERAPHIM motor will be sized and tested for the Colorado Urban Maglev transport system. The system runs off an electric charge in the track and can handle grades as steep as 8 percent—nearly three times as steep as conventional trains can climb. The SERAPHIM motor was originally designed to launch satellites into orbit. Today, it holds promise for transit applications. This project aims to advance the SERAPHIM motor from the concept stage to the design stage. Static and dynamic testing of a scaled motor will be performed to establish thrust, lift, heating, efficiency and other design and performance parameters. This is a congressionally directed project.

Florida Superconducting Maglev Technology Project
Project FL-26-7023
Funding: $1,000,000 Schedule: September 2001 - September 2002
Performer: Maglev 2000 of Florida Corporation
6995 Tico Road, Titusville, Florida 32780
Investigator: Thomas Wagner Phone: 321.267.0910 Fax: 321.267.1006
FTA Project Monitor: Venkat Pindiprolu, TRI Phone: 202.366.8061 Fax: 202.366.3765
Email [venkat.pindiprolu@fta.dot.gov]

Description: Under this project, Maglev 2000 of Florida (M2000) will research and demonstrate the feasibility of a superconducting electrodynamic suspension (repulsive force) technology based on the concept of Drs. Gordon Danby and James Powel, who first pioneered the concept of magnetically levitated transport based on superconducting magnets in 1966. The high field strength superconducting magnets enable M2000 vehicles to be stabley levitated at low speed, including zero, with very low guideway power requirements. This project will manufacture, fabricate, and test levitation and propulsion components suitable for an operational demonstration of an urban maglev transit prototype vehicle. Phase One will focus on the construction, manufacture, and assembly of the guideway, coils, superconducting magnets, train control, and prototype vehicle. Maglev 2000 will demonstrate the levitation concept on the prototype vehicle and measure the propulsion forces at their guideway facilites at Space Coast Regional Airport in Titusville, Florida. Phase Two will include preliminary design of a 7-mile revenue service route connecting Visitor Center and Apollo/Saturn V Exhibit Center at Kennedy Space Center. Phase Three includes final design of the 7-mile revenue service route. Superconducting magnets enable Maglev vehicles to operate with much greater clearances above the guideway (6 inch gap) than room temperature magnets (3/8 of an inch gap). Large gaps improve safety, allow greater construction tolerances and decrease construction costs, and reduce sensitivity to ground setting and earthquakes. This is a congressionally directed project.

Japanese Chubu-High Speed Surface Transportation - Adaptation
Project MD-26-7029
Funding: $999,000 Schedule: September 2001- October 2002
Performer: Earth Tech, Inc., 7 St. Paul Street, Suite 1630
Baltimore, Maryland 21202
Investigator: Robert Evans Phone: 410.637.1614 Fax: 410.637.1614
FTA Project Monitor: Venkat Pindiprolu, TRI Phone: 202.366.8061 Fax: 202.366.3765
Email [venkat.pindiprolu@fta.dot.gov]

Description: The FTA is examining the possibility of introducing magnetically levitated low speed vehicles (under 160 mph/100 mph) for urban passenger transport in the United States. One of the candidate Maglev technologies and concepts being considered for application is the Japanese Chubu-High Speed Surface Transportation (HSST) maglev system for urban transit. The Japanese Chubu-HSST Maglev is reported as a safe urban public transport system with the performance and economy superior to conventional urban transit systems. The objective of this research project is to evaluate and determine the feasibility of adapting the Japanese Chubu-HSST Maglev technology in the United States. The HSST uses electromagnetic suspension principles based on the attractive forces between the vehicle mounted electromagnets and the

iron rail on the guideway for levitation. For propulsion, the system uses a vehicle mounted linear induction motor and a reactive aluminum plate on the guideway. Since the HSST has no moving parts, maintenance of the guideway will be much less than conventional rail systems. This project will evaluate system performance and safety characteristics of the Japanese Chubu-HSST Maglev technology, conduct a technology review and demonstration, and develop a commercialization plan, as well as a final project report. This project is conducted under the FTA Urban Magnetic Levitation Transit Technology Development Program, which implements Section 3015 of the Transportation Equity Act for the 21st Century. This is a congressionally directed project. Website URL [http://faculty.washington.edu/~jbs/itrans/hsst.htm]

MagneMotion Urban Maglev Program
Project MA-26-7007
Funding: $528,276 Schedule: July 2001 - August 2002
Performer: MagneMotion Inc., 20 Sudbury Road
Acton, Massachusetts 01720
Investigator: Richard Thornton Phone: 978.461.5090 Fax: 978.461.5088
FTA Project Monitor: Venkat Pindiprolu, TRI Phone: 202.366.8061 Fax: 202.366.3765
Email [venkat.pindiprolu@fta.dot.gov]

Description: MagneMotion, a provider of transportation and automation solutions based on linear motor propulsion and position sensing technologies, will conduct research under the FTA Urban Magnetic Levitation Transit Technology Development Program. MagneMotion's advanced technology is scalable and adaptable to a wide range of applications, and can be integrated into the design of new systems or used to augment and improve existing systems. Under this project MagneMotion will lead the development of a key Maglev technology for future implementation in transportation systems serving traffic-congested urban areas. A key element of the MagneMotion Urban Maglev system is the use of bus-size vehicles that can operate with short headways under automatic control. This research will examine the feasibility of a wide-gap electromagnetic suspension (attractive force) technology, and will perform a proof-of-concept of an experimental prototype of that technology. The project objectives are: (1) develop quantitative models for designing and analyzing the subsystems comprising wide-gap electromagnetic levitation technology (i.e., levitation, guideway, propulsion, vehicle, train control, power, and switching), and with the models optimize the technology for application to rapid rail transit, commuter rail, and short-distance shuttle; (2) perform proof-of-concept with experimental model (1.8m-long vehicle model along a 6m guideway) to verify design parameters; (3) identify potential transit markets and develop commercialization reports; and (4) deliver a final report to the FTA summarizing project performance and results. This is a congressionally directed project.

Evaluation of Fuel Cell and ITS Technology Applications for Morgantown PRT
Project WV-26-7001
Funding: $972,000 Schedule: September 2001 - March 2003
Performer: West Virginia University Research Foundation
PO Box 6845, Morgantown, West Virginia 26506
Investigator: Rober B. Hendershot Phone: 304.293.5011 Fax: 304.293.7093
FTA Project Monitor: Jeffrey Mora, TRI Phone: 202.366.0215 Fax: 202.366.3765

Email [Jeffrey.mora@fta.dot.gov]

Description: The objective of this cooperative agreement is to analyze the demands of the Morgantown Personal Rapid Transit System (MPRT), including: vehicle usage, critical control system, facility requirements, winter electric loads for guideway and other system elements, develop strategies to reduce energy usage, implement new procedures, and add or modify equipment and controls to reduce the MPRT system energy consumption. The project will be divided into two phases. Phase I will consist of a complete energy audit of the MPRT system, including development of a total energy management program. Phase I will identify various alternatives that will be developed in Phase II. Existing transit experience with clean energy technology, such as the fuel cell power system, as well as new integrated Intelligent Transportation Systems technology will be investigated. In Phase II, the alternatives recommended in the Phase I report will be further analyzed with cost and reliability data. New equipment and/or control system techniques will be tested, as appropriate. This is a congressionally directed project.

Rail System Standards and Best Practices
Project DC-26-7124
Funding: $150,000 Schedule: January 2001 - September 2002
Performer: American Public Transportation Association
1666 K Street, NW, Washington, DC 20006
Investigator: Tom Peacock Phone: 202.496.4805 Fax: 202.496.4335
FTA Project Monitor: Jeffrey Mora, TRI-20 Phone: 202.366.0215 Fax: 202.366.3765
Email [jeffrey.mora@fta.dot.gov]

Description: American Public Transportation Association members have approved a set of bylaws and committee structure governing the Rail Standards and Best Practices project. Five specific areas will be the focus of this multi-year, multi-phase project: (1) Rail Vehicle Inspection and Maintenance, (2) Fixed Structure Inspection and Maintenance, (3) Operating Practices, (4) Grade Crossings, and (5) Rail Vehicle Crashworthiness. The funding provided by this cooperative agreement will be directed toward Task Force 4, Grade Crossings. Each of the 5 task forces will develop one or more standards and/or best practices focusing on system safety. These standards and best practices will be formally adopted and implemented by the rail transit industry.

Silverliner IV Propulsion System Upgrade
Project PA-26-7007.02
Funding: $2,993,400 Schedule: September 2000 - July 2003
Performer: Southeastern Pennsylvania Transportation Authority
1234 Market Street, Philadelphia, Pennsylvania 19107
Investigator: Edward Murphy Phone: 215.580.8415 Fax: 215.580.8418
FTA Project Monitor: Jeffrey, Mora, TRI Phone: 202.366.0215 Fax: 202.366.3765
Email [jeffrey.mora@fta.dot.gov]

Description: The Southeastern Pennsylvania Transportation Authority (SEPTA) will design and contract for the engineering, manufacture, testing, and installation of a new microprocessor-

based propulsion system for each railcar in the Silverliner IV commuter rail fleet. The new system will retain the existing traction motors, power electronics, and signal inputs. Circuit boards in the propulsion, braking and wheel slip circuits will be replaced. A fault indicator and diagnostic system will be installed. Phase 1 includes prototype testing and evaluation of the new system in one railcar. Phase 2 involves the acquisition of equipment and installation of the system in 77 cars. Phases 3 and 4 consist of installation of the system in the remaining 154 Silverliner IV cars. All phases of this research project will be documented in a final report. This is a congressionally directed project.

Infrastructure

Development of Tunnel Management System Guide
Project DC-26-7115
Funding: $150,000 Schedule: April 2001 - December 2001
Performer: Federal Highway Administration
U.S. Department of Transportation, Washington, DC 20590
FTA Project Monitor: Mary Anderson, TRI Phone: 202.366.0201 Fax: 202.366.3765
Email [mary.Anderson@fta.dot.gov]

Description: This intra-agency agreement supports the development of a comprehensive *Tunnel Management System Guide* for both highway and rail transit tunnels and related systems. The Guide will offer state highway, rail transit, and tunnel authorities guidance and procedures for evaluating tunnel conditions; provide early warning assessments of structural, safety and other deficiencies; and assist in the planning of corrective and preventive actions for rail transit tunnels and related systems. The final product will provide highway and rail transit system operators with a manual for conducting inspections of various highway and rail transit tunnels, and a collection of best practices for maintaining and repairing tunnels, as well as discussion of tunnel system defects, root causes, and common practices implemented for corrective action. The activities of this Civil Infrastructure Initiative involve research and evaluations of tunnel design and construction technologies, and documentation of lessons learned from a variety of tunneling projects domestically as well as internationally.

Quality Assurance and Quality Control Guidelines
Project IT-90-5001
Funding: $100,000 Schedule: July 2001- January 2002
Performer: Booz-Allen & Hamilton, 3 Gateway Center, Suite 248N
Pittsburgh, Pennsylvania 15222
Investigator: Rick Carter Phone: 412.281.4700 Fax: 412.281.3925
FTA Project Monitor: Sam Nassif, TPM Phone: 202.366.4562 Fax: 202.366.7951
Email [sam.nassif@fta.dot.gov]

Description: This project is designed to revise and update the March 1992 document titled *Quality Assurance and Quality Control Guidelines (QA/QC)*, incorporating the most current theories, best practices, and quality management systems. The guidelines will provide an overview of quality in capital projects, and serve as an up-to-date and valuable resource for local transit agencies and others undertaking a major transit capital project. It will discuss

development of a Quality Plan throughout the different project phases (project planning, preliminary engineering and final design etc.); highlight benefits of QA/QC in transit project development; complement Project Management Oversight Program; present case studies and lessons learned; and increase the reader's understanding of the respective interest in quality from a service provider, owner, and user point of view.

Turnkey Demonstration Program Oversight
Project MA-26-7040.1
Funding: $120,000 Schedule: March 2001 - July 2002
Performer: Volpe National Transportation Systems Center, Kendall Square, Cambridge, Massachusetts 02142
FTA Project Monitor: Joel Washington, TRI Phone: 202.366.5646 Fax: 202.366.3765
Email [joel.Washington@fta.dot.gov]

Description: Turnkey, the Design-Build project delivery method, is the focus of this oversight activity. The goals of Design-Build project delivery method are to speed project delivery, reduce costs, and introduce technological innovations. Under this project, the Volpe Center will provide oversight and evaluation of data collected for each of the five FTA-sponsored Transit Turnkey Demonstration Projects: Baltimore Central Light Rail Line Extensions, Bay Area Rapid Transit (BART) District Airport Extension, Los Angeles Union Station Gateway, San Juan Tren Urbano Rail Transit, and New Jersey Hudson-Bergen Line. Oversight contractors will assess the experience, effectiveness and value in the development of each Turnkey/Design-Build transit demonstration project, and the value of the turnkey method of project delivery vis-à-vis the conventional method. Special emphasis will be placed on cost, scheduling, technology and project management. Guidance will be based on best practices and lessons learned from the five demonstration projects, and how Design-Build can best be applied in the context of New Starts planning, project development, and implementation processes. The turnkey approach is expected to result in lower capital costs and fewer change orders and contract difficulties.

Fleet Operations

2001 Fleet Operations Highlights. *Shaping America's future by ensuring a transportation system that is secure, accessible, integrated, efficient, and flexible is the focus of the FTA Fleet Operations program area.*

Fleet Operations— Fleet Operations is assisting the deployment of Bus Rapid Transit (BRT) demonstration projects, including documentation and evaluation. Efforts in Fleet Operations are designed to increase efficiency, average speed, and passenger carrying capacity of transit fleets through *technological improvements*, involving-- integration of vehicle technology, Intelligent Transportation Systems, coordinated services, traffic engineering enhancements, and innovative urban design.

Bus Rapid Transit Initiative—In 1998, the FTA embarked on the BRT Demonstration Initiative to research, demonstrate and deploy an efficient, flexible and fast new form of bus service. BRT came to be viewed as an ideal setting for application of advancements in ITS, bus vehicle technology, and other customer service and fleet management innovations. Today BRT is demonstrating, in partnership with local entities, how a combination of integrated ITS technology, traffic engineering, advanced technology buses, and urban design enhancements can significantly increase speed and ridership and reduce travel time, operating costs and emissions.

In FY 2001 the BRT Vehicle Design Competition was completed and hailed as a success, producing 27 technically feasible new designs. The report titled *Evaluation Guidelines for Bus Rapid Transit Demonstration Projects* was released along with other publications. The BRT website was improved to include updated information about BRT project accomplishments, publications, and other activities [http://www.fta.dot.gov/brt/]. The website includes information about the Honolulu BRT project--spotlighted in a Sierra Club report titled *Smart Choices, Less Traffic*, that identifies the best and worst traffic and air pollution management plans across America.

In 2001, the Pittsburgh West Busway BRT project was added to the Port Authority of Allegheny County's successful Bus Rapid Transit systems, that began with the South Busway in 1977, and then the Martin Luther King Jr. East Busway in 1983. The Los Angeles Rapid Bus system, operating in mixed traffic, includes many BRT features such as traffic signal priority system, fewer stops, and lower floor buses for fast boarding. Travel time has been cut by 25 percent and patronage has increased by 25 to 30 percent. Currently, 17 cities are members of the BRT Consortium; two have fully operational BRT demonstration projects—Pittsburgh West Busway and Miami South Busway. Another three cities—Honolulu, Los Angeles, and Chicago—have implemented the initial phase of BRT projects with excellent early results.URL [http://www.fta.dot.gov/brt/].

Fleet Operations
Continued

Intelligent Transportation Systems (ITS)—a broad range of technologies, known collectively as Intelligent Transportation Systems, is improving the security and safety of the transit fleet through integrated and cost-effective transportation solutions. Improving mobility by reducing delay and modernizing operations is a major goal of many ITS components of the Department of Transportation, including the FTA Transit ITS component.

Advanced Public Transportation Systems (APTS)—is the transit component of the Department's ITS Program. Transit ITS is a collection of proven and emerging technologies that increase the efficiency, security and safety of existing public transit services, and offer customers greater access to information on system operations. Transit ITS applications integrate various technologies and systems—such as communications, information processing, control, and Global Positioning Systems—to track the movement of vehicles, monitor traffic flow, provide security at border crossings, and reduce congestion. The FTA Transit ITS program has three components: Metropolitan, Rural, and the Intelligent Vehicle Initiative.

FTA has supported adaptation of these new technologies to increase the security and efficiency of public transit. Today transit agencies around the nation are deploying and integrating advance technologies to combat crime, reduce travel time, provide more reliable service, and to reduce air pollution.

Before September 11, 2001, the average Intelligent Transportation System in one city or region was not linked with other cities or with the police or other emergency personnel. But the terrorist attacks of 2001 have energized government officials to opt for advancing regional ITS integration and interoperability of traffic management centers and other transportation systems with public service systems such as police and emergency community services.

In April 2001, the FTA issued the **National Intelligent Transportation Systems (ITS) Architecture Consistency Policy** for transit projects. The new policy is provided to ensure that ITS projects carried out using Mass Transit Funds from the Highway Trust Fund conform to the DOT National ITS Architecture and applicable standards. FTA and the National Transit Institute started a series of regional courses on policy requirements. The policy can be viewed online at URL [http://www.its.dot.gov/aconform/aconform.htm].

Bus vehicle safety is progressing under the ITS Intelligent Vehicle Initiative (IVI) program. Collision warning systems are being developed to help bus drivers operate vehicles more safely and efficiently. In FY 2001, the IVI program moved forward on the development of systems to reduce transit crashes. A rear-impact collision warning system project was started in Ann Arbor, Michigan. The forward- and side-collision warning projects also neared completion of performance specifications. The highlight of 2001 was, however, a 100 vehicle test of a side-object-detection system in Pittsburgh, Pennsylvania. Early results from the 100 vehicle test

showed potential for collision warning systems to increase operator safety. Final results are expected in 2002.

One of the most widely implemented ITS technologies in public transit today is the **Traveler Information System.** In FY 2001, FTA completed the first phase of traveler information research on the impact of new light-emitting diode (LED) display signage on buses and the relationships to requirements of the Americans with Disabilities Act (ADA). A report showing the status of the new technology, and others, versus the gaps in the current guidance was completed in 2001. The gap analysis program leads into a human factors testing program to validate performance and visibility of the signs.

In FY 2001, the **Transit Standards Consortium** successfully developed and piloted training programs for FTA on vehicle area networks and transit communications interface profiles. The training courses deal with the benefits of standards, the application of the standards, and procuring systems using standards.

The ITS Electronic Document Library Website provides the most comprehensive collection of documents on intelligent transportation systems topics published and sponsored by the U.S. Department of Transportation. Website [http://www.its.dot.gov/itsweb/welcome.htm].

In FY 2001, the FTA supported the Utah Transit Authority efforts to design, develop, and install an ITS Bus-Rail Integration System for the **Salt Lake City 2002 Winter Olympic Games.** The system was up and running for the 2002 Winter Olympic Games, providing passengers with an advanced traveler information system and an improved transfer system. Using Global Positioning System and radio technology, rail arrival and departure information was automatically relayed to the connection protection system. This is the first automated "connection protection" system to coordinate transfers from light rail to bus in Salt Lake City. FTA provided 35 percent of the $1.8 million total cost.

In FY 2001, the APTS division began work to develop a report on the *State of the Practice in Rail Transit Intelligent Transportation Systems.* The study activities include a survey of five transit authorities to determine how to merge differing approaches, ITS technologies, and scales of economy into the provision of a fully integrated and seamless transit system. The study focuses on the rail ITS operations at Washington Metropolitan Area Transit Authority, Utah Transit Authority, Tri-County Commuter Rail Authority, San Francisco Bay Area Rapid Transit Authority and San Francisco Municipal Railway. The study explores technologies that improve safety, security, effectiveness and efficiency of rail systems in the areas of Advanced Traveler Information Systems, Transportation Management Systems, Mixed Rail Corridor Operations, Grade Crossing Protection Improvement, Video Monitoring, and Multimodal Integration. The report will be available in November 2002.

Evaluation of the Cape Cod Regional Transit Authority's APTS project–the application of ITS technologies to fixed-route and paratransit operations in a rural transit setting to improve intermodal transportation services for the residents and visitors of rural Cape Cod—has provided positive results. APTS has improved operations management, data collection management, customer information services, and the capability to track vehicle locations, and has provided other benefits.

APTS Mobile Showcase—a 48-foot expandable trailer equipped with more than 35 APTS technologies and systems displayed in a hands-on environment--continued to tour the country in 2001. ITS America hailed the APTS Mobile Showcase as one of the Best of ITS for 2001, in education and training. The classroom on wheels offered transportation professionals and the public the opportunity to learn about ITS benefits, as well as the latest technologies used at a bus stop, on a bus, and at control and service support centers.

The report, *Advanced Public Transportation System Deployment in the United States Year 2000 Update*, shows that 230 transit agencies operate or are planning to operate 316 service types employing Automatic Vehicle Location (AVL). Of the 572 agencies surveyed in the Year 2000, the most widely deployed APTS elements are Automated Transit Information (291 agencies), Advanced Communications (229 agencies), and Automated Operations Software (177 agencies). The APTS element with the greatest number of planned deployments by 2005 is AVL (142 agencies), and the most common form of AVL in use is the Global Positioning System (GPS). The least widely deployed APTS elements are Vehicle Component Monitoring (45 agencies), Automatic Passenger Counters (33 agencies), Traffic Signal Priority for transit vehicles (30 agencies), and Vehicle Probes (8 agencies).

Integrated ITS is a situation in which agencies share infrastructure (e.g., computer systems, communication lines), coordinate operations (e.g., common control strategy), or share information in real time via electronic means. The APTS Deployment Year 2000 survey report (cited above) shows a total of 84 Integrated ITS systems, 59 operational and 25 planned deployments, in areas outside of the 78 largest metropolitan areas.

Electronic Payment Systems. Washington Metropolitan Area Transit Authority (WMATA) in Washington, DC, has successfully implemented a contactless card, SmarTrip, for metro rail and parking. After a trial demonstration, the agency decided to implement the payment systemwide and expand it to bus fares and other markets. WMATA has also developed an interactive traveler information system—RideGuide—to enable customers to plan trips on metro from origin to destination, including bus and rail transfers and walking directions. RideGuide URL [http://rideguide.wmata.com/].

Internet-based Real-time Traveler Information—Nextbus is an innovative service that provides free information to transit customers on the location and arrival time of the next bus. Nextbus information is available on 13 transit systems. Nextbus can be accessed onsite at selected transit stops and also via the Internet [http://www.nextbus.com/].

PugetPass is Central Puget Sound's regional transit pass that can be used to ride on Community Transit, Everett Transit, King County Metro, Pierce Transit and Sound Transit Services in Washington State. PugetPass is the result of a coordinated and cooperative effort among member transit agencies to participate in a shared transit fare system. **TransLink**, a regional fare payment system using smartcard technology, was scheduled as a demonstration project in the San Francisco Bay Area in mid-2001. The nine-county Bay Area will be first in the U.S. to have a single card that can be used on all forms of public transit in the region—buses, trains, and ferries.

Advanced Public Transportation Systems Technical Support
Project MA-26-7007.10
Funding: $286,980 Schedule: September 2001 - August 2003
Performer: Volpe National Transportation Systems Center
Kendall Square, Cambridge, Massachusetts 02142
Investigator: Robert Ow Phone: 617.494.2411 Fax: 617.494.3670
FTA Project Monitor: Ronald Boenau, TRI Phone: 202.366.0195 Fax: 202.366.3765
Email [ronald.boenau@fta.dot.gov]

Description: This project is a continuing effort to support the Advanced Public Transportation Systems (APTS) Program—the transit component of the Department's Intelligent Transportation Systems (ITS) Initiative. APTS, also called Transit ITS, offers low-cost technology-based solutions to the challenges confronting the nation's public transportation systems. The Transit ITS program is designed to encourage development and implementation of innovative technologies and strategies to improve all aspects of public transportation and ridership. APTS incorporates state-of-the-art computer, telecommunications, and navigation technologies to improve the service and safety of public transit. Under this project, technical support will cover development and management of seven separate projects: Transit Intelligent Vehicle Initiative (IVI); Transit IVI System Integration Testing; Smartcard Guidelines Update; ITS Standards Development; Transitweb Maintenance; and FTA Technical Staff Support. Technical staff support activities will include reviewing, analyzing and coordinating information in support of the APTS program, as well as updating reference material on the deployment and state-of-the-art in Transit ITS technology. Products and services delivered under this project assist transit agencies in the planning, procurement, and implementation of ITS Transit technologies. Project is funded under the National ITS Program, administered by the Department's ITS Joint Program Office.

Autonomous Dial-A-Ride Transit Project – In-Vehicle Dispatch
Project TX-26-7010
Funding: $937,500 Schedule: February 2001 - December 2002
Performer: Corpus Christi Regional Transit Authority
812 Alameda, Corpus Cristi, Texas 78404-2933
Investigator: Linda Watson Phone: 361.289.2712 Fax: 361.289.3056
FTA Project Monitor: Brian Cronin, TRI Phone: 202.366.8841 Fax: 202.366.3765
Email: [brian.cronin@fta.dot.gov]

Description: Only a few agencies have installed sophisticated paratransit operations software systems. Currently under development is a demand responsive operations software that will virtually eliminate the role of the dispatcher in paratransit service—the autonomous dial-a-ride (ADART) transit software. ADART employs fully automated order-entry and dispatching systems that reside onboard the vehicle. The customer is the only human involved in the entire process of requesting a ride, assigning trips, scheduling arrivals, and routing the vehicle--no dispatcher is involved. The computers onboard the vehicles not only "talk" to each other, but also "bid" for the incoming trip request based on the vehicle's cost to serve. This project provides ongoing support to Corpus Christi Regional Transit Authority (RTA) for Phase 2 of a of a four-phased project to develop an operational autonomous dial-a-ride transportation service. Phase 1 provided the feasibility assessment that led to Phase 2 development and testing of

prototype software for the onboard computers. Phase 3 will provide for field testing of the complete system and Phase 4 will include testing the system in revenue service. Overall, ADART is a computerized demand-responsive transportation system that provides door-to-door service, automated fare collection, and computerized diagnostic service. The project will integrate ADART system with the communications, vehicle location, fare payment, traveler information systems currently operated by RTA. The project includes prototype implementation and test of two vehicles using the advanced route scheduling and dispatch system.

Central Ohio Transit ITS Technology Deployment
Project OH-26-7004.1
Funding: $300,000 Schedule: April 2001 - September 2002
Performer: Central Ohio Transit Authority
1600 McKinley Avenue, Columbus, Ohio 43222
Investigator: Jeff Vossler Phone: 614.275.5800 Fax: 614.275.5933
FTA Project Monitor: Brian Cronin, TRI Phone: 202.366.8841 Fax: 202.366.3765
Email [brian.cronin@fta.dot.gov]

Description: This project is phase two of the Central Ohio Transit Authority (COTA) program to develop and deploy an integrated multi-modal intelligent transportation systems (ITS) for Central Ohio. COTA is working with the City of Columbus Traffic Engineering Division, the Ohio Department of Transportation, Mid-Ohio Regional Planning Commission, and the Columbus Airport Authority to develop and deploy a regional integrated transportation system. The program will integrate traffic signal prioritization, transit management, and incident management systems in the region. COTA will deploy a signal priority system at 32 intersections and equip 80 buses with priority systems. COTA will provide real-time transit information on the downtown link and circulator routes. Information systems will be provided on ten vehicles and at bus shelters and hotel lobbies in the area. Sixty percent of the COTA bus fleet will be equipped with an automatic vehicle location system. Project is funded under the National ITS Program, administered by the Department's ITS Joint Program Office.

Electronic Payment System Operational Test
Project FL-26-7011.01
Funding: $2,330,000 Schedule: February 2001 - July 2004
Performer: LYNX/Central Florida Regional Transportation Authority
445 W. Amelia Street, Suite 800, Orlando, Florida 32801-1128
Investigator: Doug Jamison Phone: 407.841.2279 Fax: 407.999.5444
FTA Project Monitor: Sean Ricketson, TRI Phone: 202.366.6678 Fax: 202.366.3765
Email [sean.ricketson@fta.dot.gov]

Description: This project enables the Central Florida Regional Transportation Authority, also known as LYNX, to develop and conduct an operational test of a regional electronic payment system that integrates transit fare collection with parking payment, and electronic toll collection. This electronic payment system will provide the customer with a single account structure for multiple agency/service providers and another payment instrument—the smartcard to pay for transportation services throughout the region. Although the operational test will begin with a basic set of transportation electronic payment applications of transit, toll, and parking payment,

the system will be designed with an open system architecture for possible expansion. The Partnership will build on prior successes and use off-the-shelf component solutions so that development efforts can be focused on system integration issues. Project is funded under the National ITS Program, administered by the Department's ITS Joint Program Office.

Fare Collection Oversight Assistance
Project MA-90-7021
Funding: $200,000 Schedule: December 2000 - December 2002
Performer: Harvard Design and Mapping
30 Spinelli Place, Cambridge, Massachusetts 02138 - 1046
Investigator: Kija Kim Phone: 617.354.0100 Fax: 617.868.6855
FTA Project Monitor: Helen Tann, TRI Phone: 202.366.0207 Fax: 202.366.3765
Email [helen.tann@fta.dot.gov]

Description: The purpose of this project is to develop additional modules for the Fare Revenue Interactive Electronic Workbook (Fare RevIEW)—a software program developed to assist transit officials to internally evaluate fare revenue control measures, and reduce the potential for fare revenue loss through theft or employee abuse of the internal processes. The original software program primarily dealt with automated fare collection methods. Most of the small urban and large rural systems do not have automated fare collection methods, and primarily provide paratransit and fixed-route-bus service. Under this project, a module will be developed that deals specifically with the concerns and difficulties of smaller transit agencies with limited resources. Project deliverables will include: (1) enhancement of previously developed Fare RevIEW program to include electronic fare media, (2) refinement, testing and distribution of Fare RevIEW Program via CD-ROM, Internet, and other sources and, (3) A Transit Revenue Management Internal Control Manual linked to the format and structure of the Fare RevIEW computerized workbook, suitable to smaller systems. Project is funded under the National ITS Program, administered by the Department's ITS Joint Program Office.

Geographic Information Systems in Transit Applications
Project MA-26-7053.02
Funding: $ 100,000 Schedule: September 2001 - September 2002
Performer: Bridgewater State College
Park Terrace, Bridgewater, Massachusetts 02325
Investigator: Lawrence Harman Phone: 508.279.6144 Fax: 508.279.6121
FTA Project Monitor: William Wiggins, TRI Phone: 202.366.0255 Fax: 202.366.3765
Email [william.wiggins@fta.dot.gov]

Description: The purpose of this project is to provide current information and guidance to transit agencies on the use of geographic information system (GIS) and spatial data in transit applications. The project intends to update the 1991-1995 study titled, *Current Use of GIS in Transit Studies,* and make it available to the transit industry. Bridgewater State College will inventory, assess, and report on current transit agency practices in the use of GIS technology and spatial data in transit planning and operations. Researchers will conduct a survey of North American transit agencies, assessing types of GIS technology in use, characteristics of the spatial data represented within the GIS system, and current state of the practice in North American

transit agencies. The study includes identification and documentation of the issues encountered and lessons learned by transit agencies. A database of survey responses will be developed, and comparisons will be made to the 1991-1995 survey results. Project activities and results will be documented and made available to transit agencies. Implementation of GIS provides a powerful tool to assist transit operators in developing the necessary data to make improved operation and investment decisions. GIS provides a current, spatial, interactive visual representation of transit operations. Project is funded under the National ITS Program, administered by the Department's ITS Joint Program Office.

Integrated Forward and Side Collision Warning
Project PA-26-7006-02
Funding: $325,000 Schedule: October 2001 - December 2002
Performer: Pennsylvania Department of Transportation
P.O. Box 3347, Harrisburg, Pennsylvania 17105-3347
Investigator: Chris Johnston Phone: 717.705.1493 Fax: 717.787.5491
FTA Project Monitor: Brian Cronin, TRI Phone: 202.366.8841 Fax: 202.366.3765
Email [brian.cronin@fta.dot.gov]

Description: This project is a continuation of the side collision warning Project PA-26-7006.01 to develop advanced safety systems for transit buses. The project supports the efforts of the Pennsylvania Department of Transportation (PennDOT) to develop performance specifications for an integrated forward and side collision warning system for transit buses under the Department's Intelligent Vehicle Initiative. Penn DOT has added $400,000 in cost share to the FTA funding, and has partnered with Carnegie Mellon University, the Port Authority of Allegheny County, and Clever Devices. The PennDOT team is also partnered through a Federal Highway Administration (FHWA funding of $350,000) cooperative agreement with the California Department of Transportation, San Mateo County Transit, California PATH, and Gillig Corporation to develop the performance specifications. This is the first phase of the program and will include the development of a systems integration plan. The overall program is expected to include $3 million in federal funds and will include a significant amount of simulation and testing to produce a prototype integrated forward and side collision warning system and an accompanying specification for the system. Project is funded under the National ITS Program, administered by the Department's ITS Joint Program Office.

Integrated ITS Technology Program - Cleveland
Project OH-26-7003
Funding: $791,000 Schedule: January 2001 - July 2002
Performer: Greater Cleveland Regional Transit Authority
1240 West 6th Street, Cleveland, Ohio 44113
Investigator: Henning Eichler Phone: 216.566.5038 Fax: 216.566.5298
FTA Project Monitor: Brian Cronin, TRI Phone: 202.366.8841 Fax: 202.366.3765
Email [brian.cronin@fta.dot.gov]

Description: This project supports the Greater Cleveland Regional Transit Authority (RTA) effort to implement an integrated intelligent transportation systems (ITS) passenger counter system. The system integrates a communications system with a computer network to enable

real-time monitoring of ridership trends from a central location as well as gathering information, on a regular basis, to support more efficient use of resources without incurring added labor costs. The integrated system will allow data gathering on a stop-by-stop level of detail. In this integrated environment with radio equipment, RTA will be able to provide real-time ridership monitoring on at least 20 percent of RTA services at all times. Project is funded under the National ITS Program, administered by the Department's ITS Joint Program Office.

IVI Lane Assist System for Bus Rapid Transit
Project MN-26-7003
Funding: $217,836 Schedule: October 2001 - December 2002
Performer: Metropolitan Council of Governments
560 Sixth Avenue North, Minneapolis, Minnesota 55411
Investigator: Steve McLaird Phone: 612.349.7312 Fax: 612.349.7316
FTA Project Monitor: Brian Cronin, TRI Phone: 202.366.8841 Fax: 202.366.3765
Email [brian.cronin@fta.dot.gov]

Description: This research will focus on bus rapid transit system (BRT) requirements for lane assist technology to support transit operations in narrow lanes. Initial research will build upon and expand current research and development already occurring on other intelligent vehicle initiative (IVI) platforms. Lane assistance technology increases the safety of BRT vehicles operating in a unique environment, such as the narrow lane or bus shoulder lane. A lane assist system is expected to integrate the sensor system, steering controller, steering actuator, driver interface, roadside-to-vehicle communication system, and system diagnostics. The technology stems from research on intelligent vehicles and automated highway systems. The project will develop a set of guidelines based on the BRT community's need, the technology currently available, and the human factors requirements for safe implementation of these systems. Fiscal Year 2001 funding is the first part of an overall $400,000 program, to be completely funded in FY 2002. IVI is improving safety under three conditions: normal driving conditions, degraded driving conditions, and imminent crash conditions. Project is funded under the National ITS Program, administered by the Department's ITS Joint Program Office. Website URL [http://www.its.dot.gov/ivi/ivi.htm]

Location Referencing Guidebook
Project NJ-26-7044-01
Funding: $140,000 Schedule: September 2001 - December 2002
Performer: Transit Standards Consortium
20 Chestnut Street, Suite 2, Tenafly, New Jersey 07670
Investigator: Richard Cox Phone: 724.772.4013 Fax: 724.776.0243
FTA Project Monitor: Brian Cronin, TRI Phone: 202.366.8841 Fax: 202.366.3765
Email [brian.cronin@fta.dot.gov]

Description: This is the second phase of a multi-phase project to develop a guidebook on location referencing standards for Intelligent Transportation Systems (ITS). The Transit Standards Consortium will develop a Location Referencing Guidebook that will assist transit operators in implementing interoperable ITS and operational systems that require the exchange of spatial data. During the first phase of the program, a requirements analysis was conducted.

The analysis included white papers on the scope of spatial data applications in transit and on the issues related to existing and emerging spatial data interoperability. The white papers are available on the [http://www.tsconsortium.org/]. This second phase of the program will include the actual development of a location referencing guidebook for the transit industry, addressing the issues defined in Phase I of this project. Project is funded under the National ITS Program, administered by the Department's ITS Joint Program Office.

National ITS Architecture Oversight and Technical Assistance
Project NJ-26-7005.01
Funding: $90,000 Schedule: August 2001 - September 2002
Performer: Palisades Consulting Group, Inc.
24 West Railroad Avenue, Suite 161, Tenafly, New Jersey 07670
Investigator: Eva Lerner Lam Phone: 201.567.0088 Fax: 201.567.8066
FTA Project Monitor: Brian Cronin, TRI Phone: 202.366.8841 Fax: 202.366.3765
Email [brian.cronin@fta.dot.gov]

Description: This amendment provides management oversight and technical assistance to transit agencies implementing Intelligent Transportation Systems (ITS). It includes contractor oversight support of the National ITS Architecture Consistency requirements of TEA-21. Oversight contractor will evaluate compliance with respect to the TEA-21 requirements for National ITS Architecture Consistency, and will assist "at-risk" or non-compliant grantees to become compliant with these requirements. The project is part of a multi-year program, which includes training in the National ITS Architecture requirements. The National ITS Architecture provides a common framework for planning, defining, and integrating intelligent transportation systems. By providing value added oversight and technical assistance, FTA can assist the transit industry to deploy more efficient and integrated ITS technologies. Project is funded under the National ITS Program, administered by the Department's ITS Joint Program Office.

National ITS Architecture Requirements Oversight
Project OH-26-7011.01
Funding: $90,501 Schedule: September 2001 - December 2002
Performer: Battelle Memorial Institute Columbus Laboratories
505 King Avenue, Columbus, Ohio 43201
Investigator: David Williams Phone: 614.424.3407 Fax: 614-424-5069
FTA Project Monitor: Brian Cronin, TRI Phone: 202.366.8841 Fax: 202.366.3765
Email [brian.cronin@fta.dot.gov]

Description: FTA is using the oversight program to monitor compliance with the National Intelligent Transportation Systems (ITS) Architecture Consistency Policy for Transit Projects. Oversight program funds are used to provide compliance reviews and subsequent value-added technical assistance. This project provides ongoing contractor support to conduct oversight on the National ITS Architecture Consistency requirements. It is part of a multi-year program, which includes training in the National ITS Architecture requirements, along with ITS architecture training provided by the U.S. DOT. Oversight contractors will evaluate compliance with respect to TEA-21 requirements of National ITS Architecture Consistency Policy, and assist "at risk" grantees to become compliant with requirements. Project is funded under National ITS

Program, administered by the Department's ITS Joint Program Office.

National Park Service and Transit ITS
Project TN-26-7003
Funding: $50,000 Schedule: October 2001 - October 2002
Performer: Department of Energy, Oak Ridge National Laboratories
PO Box 20008, MS-6206, Oak Ridge, Tennessee 37831
Investigator: Dr. Edmond Chin-Ping Chang Phone: 865.574.5003
FTA Project Monitor: William Wiggins, TRI Phone: 202.366.0255 Fax: 202.366.3765
Email [william.wiggins@fta.dot.gov]

Description: The Oak Ridge National Laboratories will assist the National Park Service in addressing transportation needs through the application of low-cost technology-based solutions, such as Intelligent Transportation Systems (ITS) applications. The project will assist the National Laboratories in providing the technical assistance and support needed to explore and test the application of integrated ITS transit technologies to improve the travel needs and safety of visitors to national parks. Currently, the National Park Service is under increased pressure to reduce the impacts from travelers visiting the parks. National Parks such as Great Smokey Mountains National Park and Grand Canyon National Park will serve as real-world testing grounds for the application of ITS transit technologies, providing a higher level of integrated service to meet the transportation needs of the National Park Service. Project is funded under the National ITS Program, administered by the Department's ITS Joint Program Office.

Rail Transit ITS Technical Assistance
Project VA-26-7028
Funding: $108,350 Schedule: April 2001 - September 2002
Performer: Peat Marwick & Associates
441 Comstock Drive, Richmond, Virginia 23236
FTA Project Monitor: Terrell Williams, TRI Phone: 202.366.0232 Fax: 202.366.3765
Email [terrell.williams@fta.dot.gov]

Description: This project provides technical assistance supporting the FTA Rail Transit Intelligent Transportation Systems (ITS) initiative. The research will evaluate the feasibility and potential application of integrated ITS technologies to provide more efficient and effective solutions to the current transportation problems facing rail transit systems across the country. The research will evaluate the Utah Transit Authority and at least two other transit systems in terms of the potential application of integrated ITS technologies, such as advanced traveler information systems, advanced train control, transportation management systems, mixed rail corridor operations, grade crossing protection improvements, and video monitoring. Project is funded under the National ITS Program, administered by the Department's ITS Joint Program Office.

Salt Lake City Winter Olympics ITS Bus-Rail Integration System
Project UT-26-7002.01
Funding: $187,000 Schedule: August 2001 - July 2002
Performer: Utah Transit Authority
3600 South 700 West, P.O. Box 30810, Salt Lake City, Utah 84130-0810
Investigator: Richard Hodges Phone: 801.262.5626 Fax: 801.287.4647
FTA Project Monitor: Terrell Williams, TRI Phone: 202.366.0232 Fax: 202.366.3765
Email [Terrell.Williams@fta.dot.gov]

Description: This is the first automated BusLink Connection Protection system developed and now operating in Salt Lake City. Under this project, the Utah Transit Authority teamed up with an Intelligent Transportation Systems (ITS) contractor to design and develop the first automated connection protection system that reduces the number of passenger missed connections from TRAX trains, the city's light rail system, to the city bus. The project developed ITS software components for a full Bus-Rail integration system—one that was up and running for use before, during, and after the 2002 Olympic Winter Games. Using global positioning systems (GPS) and radio technology, rail arrival and departure information is automatically relayed to the connection protection system. The system was installed at six TRAX stations in time for the Winter Olympic Games. Upon completion, the software provided passengers with real-time light rail system status and arrivals as well as emergency messages and system notifications. Connection protection software combines existing resources with new technology and software to provide for the integration of rail-to-bus transfers, and to protect the connection between trains and buses, giving passengers a true bus link from their train to their bus. The automated system captures and relays information between trains, buses, and the transit authority through a simple and efficient architectural design. The integrated system contains both highway and transit elements, and a new 511 traveler information system. This is a congressionally directed project.

TCIP Management and Guidebook Development
Project DC-26-7207
Funding: $410,000 Schedule: August 2001 - December 2002
Performer: American Public Transportation Association
1666 K Street, NW, Washington, DC 20006
Investigator: Lou Sanders Phone: 202.496.4886 Fax: 202.496.4335
FTA Project Monitor: Brian Cronin, TRI Phone: 202.366.8841 Fax: 202.366.3765
Email [brian.cronin@fta.dot.gov]

Description: This project is the first phase of a multi-phase program. It provides for the management and continued development of the Transit Communications Interface Profiles (TCIP) standards. The focus of this phase of the project is the development of functional requirements, application interfaces, and implementation guidelines to support the deployment of the TCIP family of standards. TCIP is a set of business area standards that support the communication and data structure for the implementation of transit intelligent transportation systems. Project is funded under the National ITS Program, administered by the Department's ITS Joint Program Office.

Transit ITS Standards Education and Outreach
Project NJ-26-7043.1
Funding: $300,000 Schedule: September 2001 - December 2002
Performer: Transit Standards Consortium
20 Chestnut Street, Suite 2, Tenafly, New Jersey 07670
Investigator: Richard Cox Phone: 724.772.4013 Fax: 724.776.0243
FTA Project Monitor: Brian Cronin, TRI Phone: 202.366.8841 Fax: 202.366.3765
Email [brian.cronin@fta.dot.gov]

Description: The U.S. Department of Transportation (DOT) has sponsored an extensive Intelligent Transportation Systems (ITS) standards outreach and training program to promote awareness and usage of ITS transit standards, including Transit Communication Interface Profiles (TCIP). This project is a continuation of the FY 2000 project to develop three training courses for transit ITS standards. The purpose of the project is to deliver three sets of courses based on vehicle area networks, incorporating transit communications interface profiles into legacy systems, and specifying ITS standards in procurement documents. During this project, a set of four courses will be delivered three times. The courses are targeted to transit decision makers and implementers regarding the Transit Communication Interface Profiles standards and vehicle area network standards. This project supports outreach and educational activities to ensure that transit ITS projects are compatible with the national architecture requirements. ITS standards define how various system technologies and components interconnect and interact within an overall framework. Project is funded under the National ITS Program, administered by the Department's ITS Joint Program Office. Website URL [www.tsconsortium.org site].

Transit IVI Program Technical Support
Project MA-26-7007.10
Funding: $75,000 Schedule: September 2001 - August 2003
Performer: Volpe National Transportation Systems Center
Kendall Square, Cambridge, Massachusetts 02142
Investigator: Michael Jacobs Phone: 617.494.2582 Fax: 617.494.3260
FTA Project Monitor: Brian Cronin, TRI Phone: 202.366.8841 Fax: 202.366.3765
Email [brian.cronin@fta.dot.gov]

Description: Through the National Intelligent Vehicle Initiative (IVI), the U.S. Department of Transportation intends to reduce vehicle crashes by helping drivers operate vehicles more safely and effectively. Under this project, the Volpe Center will continue to provide management and technical support to the Transit IVI Program. Transit IVI is designed to rapidly develop and deploy advanced safety systems that will help drivers operate buses and demand response vehicles more safely and efficiently. Technical support includes development and distribution of a quarterly newsletter on the status of Transit IVI research programs, Transit IVI system integration testing, and development of integrated display modalities for collision warning systems, as well as coordination with IVI Forward and Side Collision Warning System project. This project also supports an analysis of the human factors concerns of Transit IVI collision warning systems, and the transfer of systems from bus fleets to light rail vehicles. Project is

funded under the National ITS Program, administered by the Department's ITS Joint Program Office. Website URL [http://www.its.dot.gov/ivi/ivi.htm].

Washoe County Regional ITS Architecture/Integration Plan
Project NV-26-7004
Funding: $1,250,000 Schedule: August 2001 - July 2002
Performer: Regional Transportation Commission of Washoe County
2050 Villanova Drive, P.O. Box 30002, Reno, Nevada 89520-3002
Investigator: David Jickling Phone: 775.348.0400 Fax: 775.324.3503
FTA Project Monitor: Terrell Williams, TRI Phone: 202.366.0232 Fax: 202.366.3765
Email [Terrell.Williams@fta.dot.gov]

Description: This project supports the Intelligent Transportation Systems (ITS) Architecture/ Integration Program earmarked for Washoe County, Nevada. The Regional Transportation Commission (RTC) of Washoe County is the metropolitan planning organization for the Reno/Sparks Metropolitan Area. It is responsible for development of a Regional ITS plan to deploy ITS technologies in the region, outline a regional ITS architecture, and integrate all existing and committed ITS projects throughout the region. Under this multi-year project, the RTC will employ ITS technologies to improve the comfort, safety, service quality, and cost effectiveness of both fixed-route (Citifare) and paratransit (CitiLift) fleet. To do this, RTC will procure and install ITS technologies to existing fixed-route and paratransit fleet, including a Global Positioning System-based Automatic Vehicle Locator (AVL) system to better track and deploy transit vehicles. This system will allow RTC to accurately track the location of every vehicle in its Citifare and CitiLift transit system. Ultimately, the Regional ITS plan and architecture will link freeway system, transit services, arterial streets, traveler information, and regional traffic signal systems into a coherent framework. This is a congressionally directed project.

Rural ITS Transit

New Mexico Client Referral, Ridership, and Financial Tracking Systems
Project NM-26-7003
Funding: $300,000 Schedule: December 2001 - October 2003
Performer: University of New Mexico
Alliance for Transportation Research Institute
Albuquerque, New Mexico 87131
Investigator: Judith Espinosa Phone: 505.246.6410 Fax: 505.277.4185
FTA Project Monitor: William Wiggins, TRI Phone: 202.366.0255 Fax: 202.366.3765
Email [william.wiggins@fta.dot.gov]

Description: This project enables The Alliance for Transportation Research (ATR) Institute to work with the New Mexico Highway and Transportation Department, Public Transportation Programs Bureau (PTPB) to implement transit Intelligent Transportation Systems (ITS) architecture system. The Institute will develop and implement a web-based software program called the Client Referral, Ridership, and Financial Tracking System (CRRAFT), and procure a multipurpose electronic farecard system. CRRAFT is designed to integrate human services

transportation referral process with daily rural public transit operations. For human services agencies, CRRAFT standardizes client transportation referral and works with State Electronic Benefits Transfer Card. For transit operators, CRRAFT simplifies ridership reporting and invoicing. It will help the State PTPB and rural transit systems accurately track passengers and bill trips. In New Mexico, human services agencies will be referring clients for transportation through CRRAFT. CRRAFT's modular design supports easy modifications, including the addition of funding agencies such as the State Agency on Aging Programs, Indian and Public Health Services, and others. Project is funded under the National ITS Program, administered by the Department's ITS Joint Program Office.

Northern Shenandoah Valley Public Mobility Program
Project VA-26-7029
Funding: $100,000 Schedule: November 2001 - December 2002
Performer: Virginia Department of Rail and Public Transportation
PO Box 590, 1313 E. Main Street, Suite 300, Richmond, Virginia 23218
Investigator: Michael Hitte Phone: 540.636.4250 Fax: 540.636.7171
FTA Project Monitor: William Wiggins, TRI Phone: 202.366.0255 Fax: 202.366.3765
Email [william.wiggins@fta.dot.gov]

Description: The Northern Shenandoah Valley Public Mobility Program is an effort by a group of human service agencies and non-profit organizations to provide improved transportation in the rural Northern Shenandoah Valley region of Virginia. It is a phased program to demonstrate the integration of public transit and Health and Human Services in rural areas. The target group includes people who are mentally or physically challenged, the elderly, and persons in welfare-to-work programs. The first phase supports development of a prototype intelligent transportation system (ITS) to integrate public transit operations and human service agencies referral process in rural areas. Under this project, the Northern Shenandoah Valley Public Mobility Program will install and demonstrate an internet-based ITS software-scheduling program, that provides shared transit services among constituents of participating agencies. In addition, the system will be deployed to provide real time tracking and dispatching of transit vehicles, as well as facilitate coordinated and collaborative efforts to improve shared use of current assets. This project is an attempt by a community service agency to coordinate transit agency services across a multitude of social services organizations and funding activities. The project intends to demonstrate that improved transit services can be achieved by coordinating public transportation services with social services, and allowing passengers easy transfers across different transportation systems. By applying ITS technologies, this program helps create an environment that stimulates and supports community partnerships, encouraging locals to build a sustainable transportation infrastructure. Project is funded under the National ITS Program, administered by the Department's ITS Joint Program Office.

Pocatello Transit Agencies Coordinating Transportation Together Project
Project ID-26-7001
Funding: $100,000 Schedule: October 2001- September 2003
Performer: Idaho Transportation Department
Division of Public Transportation, PO Box 7129, Boise, Idaho 83707-1129
Investigator: Lawrence Falkner Phone: 202.334.8875 Fax: 202.334.4424
FTA Project Monitor: William Wiggins, TRI Phone: 202.366.0255 Fax: 202.366.3765
Email [william.wiggins@fta.dot.gov]

Description: This project supports the Pocatello Regional Transit project titled, Agencies Coordinating Transportation Together (ACTT). Under this project, Pocatello Regional Transit will serve as the single point-of-contact for coordinating public transportation services, including those required by both public and private sector agencies, within a three county area. The project includes deployment and use of integrated intelligent transportation systems (ITS) technologies to coordinate and improve the quality and capacity of existing public transportation services within the three county service area. Pocatello Regional Transit will develop a prototype communications system, utilizing ITS technologies such as operational software and computer-aided dispatching (CAD) systems to provide for real time tracking and dispatching of transit vehicles, as well as coordinating and integrating the area transit service operations and route planning. ACTT intends to reduce duplicative transportation services. It will offer both public and private agencies the opportunity to use a single-point of contact for public transportation services in the area. When fully deployed and integrated, the ITS technology will enable the public transportation system to operate more efficiently and safely. Project is funded under the National ITS Program, administered by the Department's ITS Joint Program Office.

Rural Intelligent Transportation Systems Shared Communications
Project TN-26-7003
Funding: $300,000 Schedule: October 2001 - December 2002
Performer: Department of Energy, Oak Ridge National Laboratory
PO Box 20008, MS-6206, Oak Ridge, Tennessee 37831
Investigator: Dr. Edmond Chin-Ping Chang Phone: 865.574.5003 Fax: 202.646.7878
FTA Project Monitor: William Wiggins, TRI Phone: 202.366.0255 Fax: 202.366.3765
Email [william.wiggins@fta.dot.gov]

Description: For rural communications, the lack of an affordable communications infrastructure hinders the coordination of services of local transit operators. Oak Ridge National Laboratories (Oak Ridge Lab) will conduct a study that focuses on communications infrastructure and information sharing among rural transit operators and others. The study will examine the actual and potential usage of shared intelligent transportation systems (ITS) communication technologies by rural transit providers and other public service agencies, including police, fire, and emergency services. Oak Ridge Lab will explore, identify and document real-world examples of multi-service providers that successfully demonstrate the best practices in implementing shared communication technologies, and the unique operations involved in getting a communication infrastructure in place. Both technical and institutional issues will be researched. Project is funded under the National ITS Program, administered by the Department's ITS Joint Program Office.

Rural Intelligent Transportation Systems Success Story
Project MA-26-7035
Funding: $150,000 Schedule: September 2001 - October 2002
Performer: Harvard Design and Mapping Company
30 Spinelli Place, Cambridge, Massachusetts 02138
Investigator: Thomas N. Harvey Phone: 978.371.0928 Fax: 978.369.1935
FTA Project Monitor: William Wiggins, TRI Phone: 202.366.0255 Fax: 202.366.3765
Email [William.wiggins@fta.dot.gov]

Description: The purpose of this research is to identify, compile, and assess best practices in the application of intelligent transportation systems (ITS) technology in rural communities across the country. Success stories of transit agencies demonstrating best practices in the deployment of ITS solutions for rural public transit in nonurban areas are included. Technologies, ranging from geographic information systems for transit planning to automatic vehicle locator systems for deploying and tracking transit vehicles will be documented in the final Rural ITS Transit Success Story report. This project effort includes development of an electronic best practices website, highlighting the state-of-the-practice in the application of integrated Transit ITS technologies in nonurban areas around the country. Overall, this project aims to provide an electronic resource of useful information for encouraging transit agencies and others in the deployment of Transit ITS technologies in rural communities, and create a knowledge base for advancing future development and deployment of integrated ITS technologies in rural areas. The Advanced Rural Transportation System (ARTS) program was developed to meet the needs of travelers in and through rural areas, as well as agencies responsible for the operation and maintenance of the rural public transportation system. Project is funded under the National ITS Program, administered by the Department's ITS Joint Program Office. ARTS Website URL [http://www.tfhrc.gov/its/newarts.htm].

Bus Rapid Transit -- Cleveland
Project OH-26-7013
Funding: $50,000 Schedule: September 2001 - December 2002
Performer: Greater Cleveland Regional Transit Authority
1240 W. 6th Street, Cleveland, Ohio 44113
Investigator: Gerri Foster Phone: 216.781.6674 Fax: 216.781.9044
FTA Project Monitor: Charlene Wilder, TRI Phone: 202.366.1077 Fax: 202.366.3765
Email [charlene.wilder@fta.dot.gov]

Description: The FTA Bus Rapid Transit (BRT) Demonstration Program provides technical assistance supporting the development, implementation, and marketing of BRT innovations in American cities. This project provides technical assistance to the Greater Cleveland Regional Transit Authority (RTA) BRT project to improve transit mobility and accessibility and provide more efficient public transportation. It includes RTA participation in BRT Consortium specialty workshops, peer-to-peer program, site visits, and other activities, as well as collection of project data for BRT project evaluation. The RTA proposes to construct a 9.8-mile section of Euclid Avenue and related transit zones by connecting the central business district (region's largest employment center) with University Circle (second largest employment area) and major cultural, educational, and medical districts. The BRT will operate in an exclusive, center median busway, beginning from Public Square to University Circle, and segue curbside from University Circle to the Louis Stokes at Windermere Rapid Transit Station in East Cleveland. The BRT Line will utilize hybrid, diesel-electric vehicles to operate in the exclusive lanes. Construction of the BRT line is expected to begin in 2004, with completion and start-up revenue service in 2006. This project is currently in the final design stage of development. The RTA estimates time savings averaging eight minutes per passenger. Internet URL
[http://www.fta.dot.gov/brt/projects/cleveland.html]

Bus Rapid Transit -- Honolulu
Project HI-26-7001.1
Funding: $50,000 Schedule: June 2001 - September 2002
Performer: City and County of Honolulu, Department of Transportation Services
650 South King Street, 3rd Floor, Honolulu, Hawaii 96813
Investigator: Paul Steffens Phone: 808.527.6891 Fax: 808.596.2380
FTA Project Monitor: Charlene, Wilder, TRI Phone: 202.366.1077 Fax: 202.366.3765
Email [charlene.wilder@fta.dot.gov]

Description: Bus Rapid Transit (BRT) is characterized by its low operating costs, high capacity, flexible and faster bus service, and advanced technologies. It is designed to improve customer convenience and reduce delays, as well as provide high quality public transit to improve the quality of life for American communities. In 1999, FTA selected the City and County of Honolulu as one of the ten demonstration sites to participate in the BRT Demonstration Program. This project provides financial assistance to the City and County of Honolulu to participate in BRT Consortium activities, including specialty workshops, peer-to-peer program, review of lessons learned, and data collection activities for Honolulu's BRT project evaluation. The BRT Consortium is designed to bring together planners and operations managers from transit agencies across the country to discuss BRT issues, exchange ideas and experiences, as well as how to

transform ordinary bus service into bus rapid transit service. This amendment supports City Express! the Honolulu's BRT project which began in 1999. City Express! is a limited stop service overlayed on current local service routes running in whole or in part along the same alignment, with additional transit priority measures and improved express service stations to be added in subsequent phases. City Express! is designed to reduce the severe traffic congestion, currently existing along the primary corridor, by providing a fast, efficient, and timely alternative to the automobile. Average passenger travel times on a 12.6-mile route were cut from one hour and twenty minutes to 45 minutes. Average weekday ridership has quadrupled from 2,500 to 10,000. Honolulu is currently conducting preliminary engineering on the Primary Corridor Transportation Project (PCTP)—a proposed BRT system consisting of in-town and regional BRT components. Honolulu was awarded Section 5309 New Starts grants to conduct planning and preliminary engineering. Honolulu intends to pursue New Starts funds for construction of the PCTP. Website URL [http://www.fta.dot.gov/brt/projects/index.html]

Bus Rapid Transit – Los Angeles Rapid Bus and Beyond
Project Number CA-26-7031
Funding: $100,000 Schedule: March 2001 - June 2002
Performer: Los Angeles County Metropolitan Transportation Authority
One Gateway Plaza, Los Angeles, California 90012-2932
Investigator: Rex Gephart Phone: 213.922.3064 Fax: 213.922.2845
FTA Project Monitor: Charlene Wilder, TRI Phone: 202.366.1077 Fax: 202.366.3765
Email [Charlene.wilder@fta.dot.gov]

Description: The FTA Bus Rapid Transit (BRT) Demonstration Program provides technical assistance to encourage transit agencies, local and state governments and metropolitan planning organizations to consider BRT in their planning process, and to implement and market BRT innovations in American cities. This project supports the Los Angeles County Metropolitan Transportation Authority (MTA) effort to improve transit mobility and accessibility and provide more efficient public transportation through bus rapid transit. Technical assistance focuses on support for the development and deployment of the innovative Los Angeles Metro Rapid Bus Demonstration program (Rapid Bus), initiated in 2000 on two corridors--Ventura and Wilshire/Whittier Boulevards. Rapid Bus service operates in mixed traffic lanes and includes many BRT features, such as traffic signal preference within the City of Los Angeles, fewer stops, low-floor buses for fast boarding, and easier to use. Travel time has been cut by 25 percent and patronage has increased by 25 to 30 percent. Within its first two months of operation, Rapid Bus proved its worth when the Wilshire/Whittier demonstration corridor became the busiest route in Los Angeles County. Transit riders made a clear choice to ride a faster bus with fewer stops, fewer red lights, faster boarding, less waiting, and easier to use. Metro Rapid Bus will become more rapid when it operates in lanes dedicated for buses only. Rapid Bus service will be expanded into 15-20 new express lines and corridors with exclusive rights-of-way.

Bus Rapid Transit -- Port Authority of Allegheny County
Project PA-26-7011
Funding: $50,000 Schedule: May 2001 - April 2003
Performer: Port Authority of Allegheny County
345 Sixth Avenue, Pittsburgh, Pennsylvania 15222-2527

Investigator: Cathy Williams Phone: 412.566.5101 Fax: 412.566.5111
FTA Project Monitor: Irving Chambers, TRI Phone: 202.366.0238 Fax: 202.366.3765
Email [irving.chambers@fta.dot.gov]

Description: Pittsburgh is one of the cities selected to participate in the FTA Bus Rapid Transit (BRT) Demonstration Program. This project provides technical assistance to the Port Authority of Allegheny County (Port Authority) for data collection to evaluate the Port Authority development and implementation of the successful West Busway BRT project, which opened in September 2000. Its quick and convenient access to and from downtown Pittsburgh made West Busway an immediate success. The project also supports Port Authority participation in the National BRT Consortium activities, including forums for peer-to-peer information sharing, specialty workshops, and other professional activities. The Pittsburgh West Busway is the latest addition to the Port Authority's successful system of bus rapid transit that began with the South Busway in 1977, and then with the Martin Luther King Jr. East Busway in 1983. Currently the West Busway serves approximately 40,000 riders each week, projected to increase. West Busway is a 5-mile long exclusive bus right-of-way, constructed along an abandoned railroad right-of-way. It has six ADA-accessible stations with 24-hour lighting, and will include six park-and-ride lots with over 2,500 spaces. The Port Authority's multi-faceted BRT system currently in operation features improved methods of operation, better service levels and travel time savings on all four busways. Pittsburgh Busway Website URL [http://www.fta.dot.gov/brt/projects/pittsburgh.html]

Bus Rapid Transit Program Technical Assistance
Project DC-26-7075.2
Funding: $250,000 Schedule: September 2001 - December 3003
Performer: Mitretek Systems
600 Maryland Avenue, SW, Suite 755, Washington, DC 20024
Investigator: Donald Roberts Phone: 202.863.2984 Fax: 202.863.2988
FTA Project Monitor: Stewart McKeown, TRI Phone: 202.366.0244 Fax: 202.366.3765
Email [stewart.mckeown@fta.dot.gov]

Description: Bus Rapid Transit (BRT) is viewed as an ideal setting for the application of advancements in intelligent transportation systems (ITS), bus vehicle technology, and other customer service innovations. Integration of these technological and operational innovations improve transit service and help attract commuters away from single occupancy vehicles to public transit. This project provides technical and programmatic support to the BRT Demonstration Program, focusing on extending the ITS marketplace to FTA BRT Consortium participants at the local level. Project activities include assessment of the potential of ITS services and technologies to improve BRT systems, development of a hierarchy of ITS services and technologies appropriate for inclusion in the BRT Demonstration Program, and development of products that resolve ITS implementation issues, as well as monitor research programs and operational tests that demonstrate the benefits of integrating ITS applications in BRT services. Technical assistance also supports the active participation of the contractor in all BRT Consortium activities, informing transportation professionals of the benefits of integrating ITS technology applications for their local areas, including more efficient use of the infrastructure and energy resources, complemented by measurable improvement in safety, mobility,

productivity and accessibility. Bus Rapid Transit is a rapidly emerging transportation concept gaining in popularity around the world.

National Bus Rapid Transit Institute
Project FL-26-7022
Funding: $350,000 Schedule: July 2001 - July 2003
Performer: University of South Florida
Center for Urban Transportation Research (CUTR)
4202 E. Fowler Avenue, Tampa, Florida 33620
Investigator: Dennis Hinebaugh Phone: 813.974.2897 Fax: 813.974.4962
FTA Project Monitor: Helen Tann, TRI Phone: 202.366.0201 Fax: 202.366.3765
Email [helen.tann@fta.dot.gov]

Description: This project provides support to CUTR of the University of Florida for the administration and operation of the new National Bus Rapid Transit (BRT) Institute, as well as for the conduct of workshops, and the evaluation of BRT systems. The Institute will conduct new research in areas related to BRT and develop best practices manuals to assist current BRT Consortium members and others in the deployment and operation of BRT systems. The National BRT Institute was established to supplement the FTA BRT Initiative, and to serve as a national resource to transportation professionals and others. The Institute provides a center for research, training, and technology transfer, as well as technical assistance and evaluation of existing and proposed BRT projects. The National BRT Institute was established jointly by CUTR and the Institute for Transportation Studies at the University of California, Berkeley. The Institute's mission is to facilitate the sharing of knowledge and innovation for increasing the speed, efficiency, and reliability of high capacity bus service through the implementation of BRT systems in the United States. BRT is a fully integrated, bus-based rapid transit service that combines most of the qualities of light rail transit with the flexibility and lower operating, maintenance, and capital cost of buses. It uses flexible service and advanced technologies to improve customer convenience and reduce delays. This is a congressionally directed project. Website URL is [http://www.nbrti.org/].

Specialized Customer Services

Leaving Nobody Behind

2001 Highlights. *Better transit services improve access to jobs, educational opportunities, health care, and other essential activities for all Americans. The FTA Specialized Customer Services Program explores strategies and provides assistance to improve services tailored for low-income, elderly, and other transit-dependent travelers including persons with disabilities.*

Easter Seals Project ACTION (Project ACTION), a national technical assistance program for Americans with disabilities —congressionally directed, FTA sponsored, and administered through Easter Seals—promotes cooperation between disability community and transportation industry, and conducts a research, demonstration and technical assistance program to promote increased mobility for persons with disabilities. URL [http://www.projectaction.org/]

An interview with the FTA Administrator, Jenna Dorn, is available online in the Fall 2001 Project ACTION Newsletter [http://www.projectaction.org/newsletter/fall2001final.pdf]. In October 2001, Project ACTION participated/exhibited at Streets Fit for People in Boston--a public forum focused on creating safe walking routes for seniors, people with disabilities, families with children and other walkers.

Project ACTION's online service offers publications relating to safe evacuation for persons with disabilities, such as the *MBTA Equal Access to Safe Egress*—safe and efficient emergency evacuation procedures for passengers with disabilities on rapid transit cars. It completed, through the FTA Transit Cooperative Research Program, an interim report titled *Improving Public Transit Options for Older Americans.* Another report, *Status of Rural Public Transportation 2000,* highlights the growth and changes in rural transit network resulting from the passage of TEA-21. URL [http://www.ctaa.org/ntrc/rtap/pubs/status2000/].

Coordinating Council on Access and Mobility-- jointly staffed by U.S. DOT and the Department of Health and Human Services, was established to address problems created by uncoordinated approaches to specialized and human services transportation. Online URL [http://www.fta.dot.gov/CCAM/www/about/index.html

Joblinks—Connecting People to Jobs--Since 1993, Congress has designated funding for the National Joblinks Employment Transportation Initiative to demonstrate innovative employment transportation strategies, connecting the unemployed and under-employed persons to jobs and job support services. This employment transportation issue is addressed through demonstration projects, technical assistance, information sharing and conferences. Online URL [http://www.ctaa.org/ntrc/atj/joblinks/].

Easter Seals Project ACTION
Project DC-26-7004
Funding: $2,993,400 Schedule: January 2001- March 2002
Performer: Easter Seals Project ACTION
1350 New York Avenue, Suite 415, Washington, DC 20005
Investigator: Bryna Helfer Phone: 202.347.3066 Fax: 202.737.7914
FTA Project Monitor: Elizabeth Solomon, TRI Phone: 202.366.0242 Fax: 202.366.3765
Email [elizabeth.Solomon@fta.dot.gov]

Description: Under this project, Easter Seals Project ACTION (Accessible Community Transportation in Our Nation) continues to promote cooperation between the disability community and transportation industry. Project ACTION conducts a research, demonstration, and technical assistance program to promote increased mobility for persons with disabilities. This includes advancing local demonstration and technical assistance projects that identify persons with disabilities and their transportation needs, and recommend remedial action; provide training programs for transit operators; develop assertive programs for people with disabilities; identify technology that could solve critical transportation accessibility issues; and continue to advance outreach and marketing programs. Project ACTION is a congressionally created national technical assistance program authorized under the Intermodal Surface Transportation Efficiency Act (ISTEA). Project ACTION provides training, resources and technical assistance to thousands of disability organizations, consumers with disabilities, and assists local transportation operators in implementing the requirements of the Americans With Disabilities Act (ADA). Project ACTION maintains a resource center with up-to-date information on transportation accessibility. This is a congressionally directed project.

Fifteenth National Conference on Rural Public & Intercity Bus Transportation
Project OH-26-5003
Funding: $45,000 Schedule: September 2001 – October 2002
Performer: Ohio Department of Transportation
1980 West Broad Street, P.O. Box 899, Columbus Ohio 43216-0899
FTA Project Monitor: Mary Martha Churchman, TPM Phone: 202.366.6693
Fax: 202.366.7951
Email [mary.martha.churchman@fta.dot.gov]

Description: This project supports the Ohio Department of Transportation's efforts to serve as local host and facilitator for the Transportation Research Board (TRB) 15th National Conference on Rural Public and Intercity Bus Transportation. The 15th National Conference will be held October 27-30, 2002, at Sawmill Creek Resort, Sandusky, Ohio. This project provides funding for the conference planning, management, and post conference production of the proceedings. The TRB national rural conference directly benefits the nation's rural transit practitioners and professionals, offering them an opportunity to network, share and exchange information with other practitioners and managers of rural public transportation.

Hennepin County Community Works Program
Project MN-26-7002.06
Funding: $1,000,000 Schedule: September 2001 - December 2002

Performer: Hennepin County , Minnesota
Housing, Community Works and Transit
417 North 5th Street, Minneapolis, Minnesota 55401
Investigator: Larry Blackstad Phone: 612.348.5859 Fax: 612.348.3832
FTA Project Monitor: Stewart McKeown, TRI Phone: 202.366.02044 Fax: 202.366.3765
Email [stewart.mckeown@fta.dot.gov]

Description: Hennepin County, the City of Minneapolis, the Minneapolis Park and Recreation Board, the Suburban Hennepin Regional Park District, and the Minneapolis School District have developed an intergovernmental planning framework for infrastructure investment called Hennepin Community Works Program (HCWP). HCWP is a comprehensive planning tool designed to assist in the coordination, planning, and effective use of multi-jurisdictional infrastructure and economic investments. Research projects are selected that will increase overall mobility and access to employment opportunities, encourage creation of new jobs through business development, and improve the residential and commercial tax base by enhancing property values. Several research studies are currently underway, such as: (1) examining how roadway design standards can be modified to better accommodate transit infrastructure, (2) examining potential economic impact of transit alternatives within and urban corridor, (3) examining the cost/benefit of transit oriented development, and (4) examining the application of bus rapid transit and Diesel Motor Unit technologies to new transit corridors. This amendment will assist Hennepin County's continuing effort to develop and apply the information generated through the HCWP projects to the development of a model for transit-oriented infrastructure improvements. The model will serve as a guide for other communities in developing solutions to the growing problem of economic deterioration in urban neighborhoods and suburban municipalities. This is a congressionally directed project.

Job Access and Reverse Commute Program - ITS Applications
Project CA-26-7032
Funding: $200,000 Schedule: September 2001 - September 2003
Performer: Kensington Systems, Inc.
1083 West Kensington Road, Los Angeles, California 90026
FTA Project Monitor: William Wiggins, TRI Phone: 202.366.0255 Fax: 202.366.3765
Email [william.wiggins@fta.dot.gov]

Description: The purpose of this project is to obtain contractor support in assessing how rural and small urban transit systems are implementing or considering the integration of Intelligent Transportation Systems (ITS) technologies into transit operations supporting the Job Access and Reverse Commute (JARC) program. The project will identify and evaluate a wide array of integrated ITS technologies that could be or have been deployed in support of the JARC initiative--from geographic information systems used to plan and identify the transportation gaps existing between workers and job sites, to automatic vehicle location systems used to track and account for transit vehicles. Data will be collected on the employment of Transit ITS technologies supporting grantees' planning and operations under the JARC program. The project will provide documented information on the successful implementation of Transit ITS technology to transit agencies, state departments of transportation, and others, as well as support

for future successful deployment of integrated Transit ITS technologies. The project is funded under the National ITS Program, administered by the Department's ITS Joint Program Office.

National Joblinks Employment Transportation Initiative
Project DC-26-7128
Funding: $1,048,000 Schedule: October 2001 - October 2003
Performer: Community Transportation Association of America (CTAA)
1341 G Street, NW, Suite 600, Washington, DC 20005
Investigator: Charles Dickson Phone: 202.661.0208 Fax: 202.737.9197
FTA Project Monitor: Pauline D'Antignac, TRI Phone: 202.366.0234 Fax: 202.366.3765
Email [pauline.dantignac@fta.dot.gov

Description: Joblinks—Connecting people to jobs. This project continues the National Joblinks Employment Initiative--the sixth round of congressionally directed Joblinks activities. The FTA National Joblinks program is a technical assistance and demonstration program designed to test innovative ways of connecting welfare recipients and other unemployed or underemployed low-income persons to jobs and job support services. CTAA administers the Joblinks program and funds projects demonstrating innovative employment transportation solutions. This project provides support for activities including support to conduct employment transportation demonstration projects that enhance transit's role in employment transportation and activities. The project also provides for a national technical assistance and information dissemination program on employment transportation. This includes (1) a real-time technical assistance program and workshops for Job Access and Reverse Commute program grantees and applicants, and (2) an employment information clearinghouse and technical assistance center, through the National Transit Resource Center and national employment transportation information website at URL [http://www.ctaa.org/]. This is a congressionally directed project.

National Rural Transit Assistance Program
Project MO-26-5001.3
Funding: $703,350 Schedule: October 2001 - October 2002
Performer: American Public Works Association
106 W. 11th Street, Suite 1800, Kansas City, Missouri 64105
Investigator: Beth Denniston Phone: 202.393.0137 Fax: 202.737.9153
FTA Project Monitor: Mary M. Churchman, TPM Phone: 202.366.6693 Fax: 202.366.7951
Email [mary.martha.churchman@fta.dot.gov]

Description: This project enables the American Public Works Association (APWA) and the Community Transportation Association of America (CTAA) to continue the activities of the National Rural Transit Assistance Program (RTAP)—providing training and technical assistance for rural public transit operators, improving safety of rural transit service, and supporting coordination with human services transportation. This national coordination and technical assistance program complements the RTAP program administered by each state, using formula funds apportioned to other than urbanized areas. The national RTAP assists both rural and specialized transit providers directly and provides support for the state RTAP programs by developing and disseminating materials of national interest. RTAP project activities are guided by a review board consisting of eleven rural operators and state RTAP managers. APWA

provides overall management of the program, and acts as liason with the state RTAP managers and RTAP Review Board. Major products of the national RTAP program include production of training modules, train the trainer workshops, information bulletins, and the National Transit Resource Center operated by CTAA. Training and technical assistance for rural and specialized transit operators helps to reconnect rural America and ensure mobility for all Americans. RTAP was established in 1987 for the purpose of providing training, technical assistance, research and support services, specifically tailored to the needs of rural transit operators. The National RTAP activities support the Strategic Goal, Mobility and Accessibility, by providing training and technical assistance to enhance the effectiveness, safety, reliability and availability of rural and small urban transit service. This is a congressionally directed project.

Policy and Planning

Analyzing the Health and Security of the U.S. Transit Industry

2001 Metropolitan/Rural Policy Development Highlights—*Improving Mobility and Accessibility. Transit Policy Studies analyze the health and security of the U.S. transit industry, assess transit investment needs, identify and evaluate benefits of transit, and help develop national policy as well as transportation decisionmaking and citizen involvement.*

Conditions & Performance. Policy studies contribute to reports to the U.S. Congress on the condition and performance of American transit systems and estimates of funding needed to maintain or improve service levels. Both the FTA and FHWA jointly publish this report to Congress titled *Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance.* Online URL [http://www.fta.dot.gov/library/policy/repts.htm].

New Starts – The FTA Capital Investment Program. In FY 2001, the FTA published the *Annual Report on New Starts: Proposed Allocations of Funds for Fiscal Year 2002.* Funding allocation recommendations made in this *Annual Report on New Starts* to Congress, include funding for new fixed guideway systems and extensions to existing fixed guideway systems, such as—light rail, rapid rail, commuter rail, monorail, peoplemovers, busways, or high occupancy vehicle facilities. Online URL [http://www.fta.dot.gov/library/policy/ns/ns.htm]

The Metropolitan Capacity Building Program is designed to help metropolitan area decision makers resolve the complex issues they encounter when addressing the transportation needs in their communities. This comprehensive program for training, technical assistance, and support is targeted to state and local governments, transit operators, and community leaders. The program is jointly sponsored by FTA and FHWA. URL [http://www.mcb.fhwa.dot.gov/].

The Innovative Financing Initiative is designed to bridge the investment gap between available resources and transportation infrastructure needs. It encompasses a combination of specially designed techniques that supplement traditional transit financing methods, maximizing the ability of states and other project sponsors to leverage federal capital for needed investment in the nation's transportation system. Website [http://www.fta.dot.gov/ntl/policy/index.html

Planning for Transportation in Rural Areas, published July 2001, fosters a better understanding of the characteristics, issues, and trends affecting rural transportation systems and the benefits of good rural system planning; reflects the need to reconnect rural with urban America; and highlights the importance to the economy, public health and safety, and social structure of rural America. Online URL [http://www.fhwa.dot.gov/planning/rural/planningfortrans/]

Building Livable Communities with Transit—The Smart Growth and Livable Communities Initiative forges linkages between transit improvements and community development activities, and provides new opportunities for changes in urban development patterns.

Metropolitan/Rural Policy Development

Benefits of Transit Investments
Project MA-26-6004
Funding: $198,900 Schedule: April 2001 - April 2002
Performer: Charles River Associates, Inc.
D-139, Boston, Massachusetts 02241-3139
Investigator: Robert Schaevitz, David Lewis Phone: 916.486.8042 Fax: 916.486.8043
FTA Project Monitor: Paul L. Marx, TBP Phone: 202.366.0201 Fax: 202.366.7116
Email [paul.marx@fta.dot.gov]

Description: The objective of this congressionally mandated study is to compare and determine the relative costs and benefits of New Starts investments versus Fixed Guideway Modernization (rebuild/replace investments). The study will analyze the basis upon which FTA could assess the benefits and effectiveness of investments in new mass transit infrastructure versus investments in enhancements or service improvements for existing transit infrastructure. The report will include 15 case studies totaling $4.5 billion, of the decision/investment process for Fixed Guideway Modernization versus New Starts, as well as a national program level assessment of the two programs on a return on investment basis.

Conditions and Performance Report to U.S. Congress
Project VA-26-6008
Funding: $195,000 Schedule: May 2001 - June 2002
Performer: Booz, Allen and Hamilton, Inc.
8283 Greensboro Drive, McLean, Virginia 22102
Investigator: Donald Schneck Phone: 215.496.8403 Fax: 215.496.6801
FTA Project Monitor: Paul L. Marx, TBP Phone: 202.366.0201 Fax: 202.366.7116
Email [paul.marx@fta.dot.gov]

Description: Transit policy studies analyze the health of the U.S. transit industry, assess transit investment needs, and help develop national policy. This research project assists the FTA Policy Development Office in developing the *Conditions and Performance Report to the United States Congress.* The report to the U.S. Congress, required by statute every two years and produced jointly with the Federal Highway Administration, focuses on the assessment of highway and transit current conditions and performance, and future investment requirements. It is also used to highlight the results of policy research. Research includes new data collection efforts and further development and maintenance of the Transit Economic Requirements Model (TERM). This will improve the accuracy and reliability of collected data to help measure progress toward outcome goals.

Transit Performance Monitoring System
Project DC-26-6022
Funding: $192,430 Schedule: July 2001- July 2002
Performer: American Public Transportation Association
1666 K Street, NW, Suite 1100, Washington, DC 20006
Investigator: Rich Weaver Phone: 202.496.4809 Fax: 202.496.4322
FTA Project Manager: Nancy Ody, TBP Phone: 202.366.0177 Fax: 202.366.7116
Email [rweaver@apta.com] [nancy.ody@fta.dot.gov]

Description: This project is an amendment to a previous research project that developed and tested the Transit Performance Monitoring System (TPMS), a survey method used to measure the performance of transit in serving three principal public policy roles—basic mobility, transit-oriented development/livable communities, and traffic congestion management. Under this amendment, the American Public Transportation Association (APTA) will encourage transit systems to voluntarily and routinely collect and report TPMS data. A working group of representatives from the APTA Policy and Planning and Marketing committees, will review and expand the core questions that were used in two previous TPMS surveys . APTA will also develop an outreach program to extend participation to a larger group of transit operators (comprised of systems that participated in previous surveys as well as new participants).

Planning & Project Development

Desert Air Quality Program Analysis
Project NV-26-7003.2
Funding: $777,486 Schedule: September 2001 - June 2004
Performer: Desert Research Institute
2215 Raggio Parkway, Reno, Nevada 89512-0255
Investigator: John Watson Phone: 775.674.7046 Fax: 775.674.7046
FTA Project Monitor: Charlene Wilder, TRI Phone: 202.366.1077 Fax: 202.366.3765
Email [charlene.wilder@fta.dot.gov <mailto:Charlene.wilder@fta.dot.gov>]

Description: Failing to meet the national ambient air quality standards for both carbon monoxide and particulate matter, Las Vegas has embarked on a course of action to identify and better understand air pollution problems in its metropolitan area, and develop an effective air pollution control strategy for the region. This project continues to support the Desert Research Institute research activities, focusing on specific air pollution problems in the Las Vegas metropolitan area. The project objective is to develop and test a new remote sensing device that accurately estimates particulate emissions from motor vehicles, and will quantify the contributions of ozone precursor and small particulate emissions from sources outside the Las Vegas metropolitan area. The research will extend the technology to particulate matter by adapting laser technology to measure particulate concentration in plumes that trail each vehicle. The study scope includes onroad exhaust measurements, emissions modeling, upper air meteorological measurements, and air quality modeling. In addition, it will quantify the contribution of ozone precursor and small particulate emissions from sources outside the Las

Vegas metropolitan area by deploying Doppler solar remote wind sensors to measure upper air wind parameters for a six month period. This is a congressionally directed project.
Website URL [<http://www.das.dri.edu/>]

Financial Oversight of New Starts Transit Projects
Project MA-90-1007
Funding: $400,000 Schedule: July 2001 - July 2003
Performer: Cambridge Systematics, Inc.
222 Third Street, Cambridge, Massachusetts 02142
FTA Project Monitor: Sharon Pugh, TPL Phone: 202.366-2360 Fax: 202.493.2478
Email [Sharon.pugh@fta.dot.gov]

Description: The contractor will conduct financial capacity assessments for proposed major transit investment projects seeking Section 5309 New Starts funds, and provide technical assistance to the Office of Planning in developing appropriate tools and guides to enhance the New Starts financial oversight program and correct compliance review deficiencies. This project provides for the financial oversight of the New Starts transit projects currently undertaking alternative analysis, preliminary engineering, and financial design of the project development process. Work tasks will include conducting assessments of grantee's capital and operating financial plans necessary for project ratings, financial evaluations of projects requesting approval to initiate preliminary engineering and final design of the project, and determinations of local financial capability of project sponsors. New Starts projects are examined to ensure the local financial commitment criterion is satisfactorily met.

Forecast versus Actual Impacts of New Starts Part I
Project VA-90-1008
Funding: $200,000 Schedule: September 2001 - April 2002
Performer: SG Associates
4200 Daniels Avenue, Annandale, Virginia 22003
Investigator: Frank Spielberg Phone: 703.750.3363 Fax: 703.750.3367
FTA Project Monitor: Sean Liberton, TPL Phone: 202.366.2360 Fax: 202.493.2478
Email [sean.liberton@fta.dot.gov]

Description. Past studies have indicated that sponsors of major capital transit projects developed in the 1960s and 1970s tended to overestimate ridership impacts and underestimate capital and operating costs during planning and project development. Recently, indicators suggest that sponsors are producing more reliable information in the development of similar projects. This study will determine whether, in fact, (1) project sponsors are producing more reliable forecasts of ridership and cost information, and (2) what changes are needed in FTA's procedures, oversight, and technical assistance to address any systematic problems. This project consists of two parts. Part 1 will include a general review of a large number of New Start projects, that will provide information for assessing trends in the project development process. Part 2 will focus on case studies of a limited number of projects regarding significant project changes and cost overruns.

Historic Preservation of Intermodal Transit Centers: Integration Versus Isolation
Project DC-26-1004
Funding: $357,000 Schedule: June 2001 - December 2002
Performer: National Trust for Historic Preservation
1785 Massachusetts Avenue, NW, Washington, DC 20036
Investigator: Dan Costello Phone: 202.588.6167 Fax: 202.588.6038
FTA Project Monitor: Effie Stallsmith, TPL Phone: 202.366.5653 Fax: 202.493.2478
Email [effie.stallsmith@fta.dot.gov]

Description: This project will explore the relationship between intermodal transit centers and transportation systems integration, as well as surrounding land uses. The project will focus on how these centers fit into settings (residential, commercial, institutional) of high and moderate densities, and how these settings strengthen the role that the centers play in community revitalization, transportation efficiency, environmental quality, as well as overall livability and economic growth. Case studies will focus on location, leveraging of funds, financial arrangements, impediments, commonalities needed for success, and the potential these projects have in increasing transit ridership, promoting economic development, extending the reach of transit, and promoting land use supportive of transit. These findings will help elected government officials at all levels, transportation professionals including planners and engineers, downtown revitalization advocates, transportation advocacy organizations, and others to make enlightened decisions on future transportation investments while improving mobility choices, reducing travel times and congestion, as well as creating public/private partnerships to meet transportation demands and economic growth.

Land Use Oversight of New Starts Projects
Project VA-90-1005
Funding: $198,740 Schedule: September 2001 - September 2004
Performer: SG Associates
4200 Daniels Avenue, Annandale, Virginia 22003
Investigator: Frank Spielberg Phone: 703.750.3363 Fax: 703.750.3367
FTA Project Monitor: Dwayne Weeks, TPL Phone: 202.493.0316 Fax: 202.493.2478
Email [dwayne.weeks@fta.dot.gov]

Description: This project supports the efforts of the Office of Planning to conduct land use assessments for projects seeking Section 5309 New Starts funding. The project effort will include land use and planning oversight of New Starts transit projects undertaking alternatives analysis, preliminary engineering, and final design. Work tasks include conducting assessments of existing land use patterns and future plans and policies, as well as providing oversight of New Starts projects conducting alternative analysis and preliminary engineering. This support will assist the Office of Planning in evaluating and rating the New Starts transit projects based on the required criteria for determining whether projects are eligible for New Starts funding. Greater focus on land use and environmental elements during the transportation planning process will expand the beneficial impacts of transportation projects as well as the effective roles planning processes can play in promoting coordinated land use and transportation planning.

New Starts Roundtable Technical Assistance
Project MA-08-1001
Funding: $75,000 Schedule: September 2001 - September 2002
Performer: Planners Collaborative, Inc.
273 Summer Street, Boston, Massachusetts 02210
Investigator: Joe Brevard Phone: 617.338.0018 Fax: 617.338.4228
FTA Project Monitor: Tonya Holland, TPL Phone: 202.366.1592 Fax: 202.493.2478
Email: [tonya.Holland@fta.dot.gov]

Description: This project provided for professional services to support the planning and hosting of the fiscal year 2001 New Starts Roundtables series. Support services included management of logistics, development of New Starts Roundtable resources, and drafting of New Starts Roundtable proceedings. For the past two years the New Starts Roundtable meetings have proven to be a successful forum for the sharing of information between FTA and grantees. Each meeting has attracted approximately 50-80 transit professionals. The Office of Planning conducts the New Starts Roundtable series to facilitate communication, discussion, and information sharing among the various parties involved in the FTA New Starts Program. This Roundtable activity enabled FTA to clarify and discuss the major issues faced by local transit agencies seeking to qualify for Section 5309 capital funding under the New Starts project development process. At the same time, the Roundtable provided a forum for local agencies to discuss their concerns and to share lessons learned and other information with members. The mission of the New Starts Roundtable includes: strengthening the partnership between FTA and local providers of public transit, providing an ongoing forum for training, information exchange, and open discussion of lessons learned, and soliciting ideas to help improve the planning and project development process for major transit capital projects.

Transit Land Use and Financial Assessments
Project MA-90-1006.01
Funding: $200,000 Schedule: September 2001 - September 2003
Performer: Volpe National Transportation Systems Center
Kendall Square, Cambridge, Massachusetts 02142
Investigator: Melissa Laube Phone: 617.494.3559 Fax: 617.494.3260
FTA Project Monitor: Dwayne Weeks, TPL Phone: 202.493.0316 Fax: 202.493.2478
Email [dwayne.weeks@fta.dot.gov]

Description: Under this project, the Volpe Center will conduct land use and financial assessment activities, as well as National Environmental Policy Act (NEPA) related environmental reviews for projects seeking Section 5309 New Starts funding. The land use assessment activity includes a review of transit supportive land use planning and zoning laws in the region. The financial assessments will review the financial condition and capacity of transit agencies considering new fixed guideway investments. This activity will focus on the strength of the transit agency's capital financial plans, stability and reliability of financial resources, as well as the transit agency's ability to marshal the resources necessary to undertake a major capital improvement project, while maintaining existing transit services and operations. This project provides oversight support to assist the Office of Planning in determining whether New Starts transit projects are eligible for the New Starts funding.

Professional Capacity Building

Attract – Train – Retain A Quality Transit Workforce

2001 Highlights. *The Professional Capacity Building Program is a workforce development program designed to assist the transit industry in the development of a highly skilled, multi-disciplinary, and diverse transit workforce for the 21st century—equipped with the knowledge, skills, and abilities required to deploy and manage the safe and secure operations of the technologically advanced national public transportation network.*

The National Transit Institute—A Training and Education Resource for the Transit Industry--focuses on the training and development needs of the transit industry, provides new methods and techniques to improve transit workforce performance and increases workplace productivity. More than 60 courses are offered throughout the U.S. for federal, state, and local transit employees in areas related to federal programs and industry needs, including—Homeland Security. Terrorist events of September 11 guided the Institute to act quickly and focus on anti-terrorist training needs of the transit industry. Two new transit security training courses are now available for front-line employees and supervisors, *System Security Awareness for Transit Employees,* and *Security Incident management for Transit Supervisors*. Both courses were built specifically for the transit industry, in cooperation with federal agencies including the FTA, FAA, and FBI, as well as transit agencies, labor unions, and security professionals. The National Transit Institute Website URL [http://www.ntionline.com/]

The Transit Cooperative Research Program (TCRP)— Addresses the Needs of the Transit Workforce through innovative research, education and information sharing, and develops innovative near-term solutions to meet the demands placed on the transit industry. TCRP products, such as new transit paradigms, transit industry best practices, and security tools for countering terrorist threats, as well as forums for the exchange of ideas and sharing of information are being developed and used to equip the transit workforce with the resources necessary to deploy, operate and maintain the safe and secure operation of the national transportation network. TCRP also conducts the International Transportation Studies Program to assist the professional development of transit managers, public officials, and others charged with public transportation responsibilities. The Transportation Research Board, which administers TCRP, maintains a listing of all TCRP projects and products on the TCRP website [http://www4.trb.org/trb/crp.nsf]. One free copy of any TCRP publication is available to anyone via American Public Transportation Association's website [http://www.apta.com/tcrp].

The University Transportation Centers Program—Educate & Recruit Future Transit Professionals through education, research and technology transfer. It is the only program in the United States that provides higher education for the next generation of transportation professionals and connects them to career opportunities in the industry. The 33 University Centers are internationally recognized centers of excellence, fully integrated within institutions of higher learning that serve as a vital source of leaders who are prepared to meet the nation's need for safe, secure, efficient and environmentally sound movement of people and goods. FTA Website URL [http://utc.dot.gov/].

National Transit Institute
Project NJ-26-2901.10
Funding: $3,991,200 Schedule: July 2001 - June 2002
Performer: National Transit Institute, Alan M. Voorhees Transportation Center
Edward J. Bloustein School of Planning & Public Policy
Rutgers, The State University of New Jersey
120 Albany Street, Suite 705, New Brunswick, New Jersey 0890 1-2163
Investigator: Paul Larrousse, Director Phone: 732.932.1700 Fax: 732.932.1707
FTA Project Monitor: Lydia Mercado, TRI Phone: 202.366.5741 Fax: 202.366.3765
Email [lydia.mercado@fta.dot.gov] [plarrousse@Rutgers.nti.edu

Description: This project provides ongoing support to the National Transit Institute/NTI *[49 U.S.C. § 5315]*, established in 1992 at Rutgers, The State University of New Jersey to meet the training and development needs of the transit industry workforce. The institute develops and teaches new methods and techniques to improve transit workforce performance and increase productivity in the workplace. Courses are conducted locally at sites nationwide on a wide variety of subjects, ranging from advanced technology and multi-modal planning to management development and training effectiveness. Transit Trainers Workshops are conducted annually to bring together trainers and human resources specialists from the industry to learn the latest techniques in training and to share training experiences on the job. In addition, NTI and FTA are working together to develop and present workshops and seminars designed to assist the transit industry in understanding and implementing advanced public transportation systems, as well as transit workplace safety and security practices. Programs on geographic information systems, automatic vehicle locator, smart card and innovative technologies are just a few of the topics under development for future presentation. Two new transit security training courses for frontline employees and supervisors are now offered. NTI serves as a major resource in support of the implementation of federal regulations and policy initiatives, as well as implementation of new and innovative practices and technologies. Website URL [http://www.ntionline.com/].

Transit Cooperative Research Program
Project DC-26-7118
Funding: $6,750,000 Schedule: September 2001 - September 2002
Performer: National Academy of Sciences, Transportation Research Board
500 Fifth Street, NW, Washington, DC 20001
Investigator: Christopher W. Jenks Phone: 202.334.3502 Fax: 202.334.2006
FTA Project Monitor: Lisa Colbert, TRI Phone: 202.366.9261 Fax: 202.366.3765
Email [lisa.Colbert@fta.dot.gov]

Description: This project provides ongoing support to the Transit Cooperative Research Program *[49 U.S.C. § 5314(a)]*. The program focuses on issues significant to the transit industry with emphasis on local problem-solving research. The FTA Strategic Plan and the Research and Technology Five-Year Plan provide the framework for TCRP efforts, which include research in a variety of transit fields such as: planning, service concepts, vehicles and equipment, facilities, operations, human resources, maintenance, policy, and administrative practices. TCRP synthesis reports summarize best transit industry practices and have been useful to transit operators.

Since TCRP's inception in 1992, approximately 1,500 research problem statements have been submitted, and the TCRP Project Selection and Oversight Committee, comprised of industry representatives, has designated 303 projects and studies to address these problems. More than 1,300 representatives of the transit industry have served on panels, which guide TCRP projects, providing a direct channel for promptly disseminating results to those who can apply them in practice. TCRP products include 69 Research Reports, 37 Transit Synthesis Reports, 42 Research Results Digests, 16 Legal Research Digests, 24 Transit IDEA Reports on development of innovative products and processes, and 9 software products. Over 400,000 copies of these products have been distributed. The Transportation Research Board administers the program and maintains a publications list and description of all TCRP studies on its website, [http://www4.trb.org/trb/onlinepubs.nsf]. In addition, the American Public Transportation Association (APTA) maintains a TCRP Dissemination website, at [http://www.apta.com/tcrp], to assist in the dissemination process to the transit industry. All TCRP publications are available electronically for immediate access through these websites.

University Transportation Research Program
Project DC-11-111-00
Funding: $6,000,000 Schedule: September 2001 - Sepetember 2002
Performer: Research and Special Programs Administration
U.S. Department of Transportation, Washington, DC 20590
FTA Project Monitor: Lewis Clopton, TRI Phone: 202.366.5741 Fax: 202.366.3765
Email [lewis.clopton@fta.dot.gov]

Description: This project provides continued support for the U.S. Department of Transportation's University Transportation Centers Program *(49 U.S.C. § 5505)*. It is the largest program in the United States that provides higher education for the next generation of transportation professionals and connects them to career opportunities in the industry. This program furthers the Administration's investment in transportation by planning to meet the transportation challenges of the 21st Century. The mission of these 33 University Centers of Excellence is to advance U.S. technology and expertise in the many disciplines comprising transportation through education, research, and technology transfer. The Centers program focuses on the transfer of knowledge relevant to national, state, and local issues, and builds professional capacity in the next generation of transportation professionals. The Centers address transportation management, research and development matters with special emphasis to increasing the number of highly skilled individuals entering the field of transportation. Recent FTA efforts have broaden the focus of the Centers to better encompass transit industry research needs and to link the program with undergraduate and graduate elements of the other educational institutions, as well as with initiatives in the Department of Transportation. Investing in this program not only provides valuable research to solve transportation problems, but also provides highly educated transportation professionals who will steer transportation policy and management well into the 21st Century. Website URL [http://utc.dot.gov/]

Great Cities Universities Transportation Initiative
Project AL-26-7021
Funding: $1,995,600 Schedule: September 2001 - September 2003
Performer: University of Alabama at Birmingham
1530 Third Avenue South, Birmingham, Alabama 35294
FTA Project Monitor: Pauline D'Antignac, TRI Phone: 202.366.0234 Fax: 202.366.3765
Email [pauline.dantignac@fta.dot.gov]

Description: This cooperative agreement provides funding to the lead university, the University of Alabama at Birmingham, in behalf of the Great Cites Universities Transportation Initiative. The Great Cities Universities Initiative is a coalition of 17 public research universities that are located in major American cities, share common characteristics, vision, and common commitment to service, achievement, and excellence in the urban environment. This includes a collaborative effort to focus on the application of advanced technologies and innovative strategies to solve transportation problems in urban areas with specific attention to the transit field. Research will be conducted in areas of importance to urban areas such as educational reform, community development, and transportation--emphasizing the application of advanced transportation technology, such as geographic information systems (GIS) and computer modeling to enhance local government analytic capabilities and service delivery. By assessing, developing and utilizing the latest technologies and innovative management practices in the transit field, together they will promote more effective transit planning and more efficient utilization of federal transportation resources. The Great Cities Universities have a common determination to maintain and build the greatness of American cities, strengthening both the institutions and communities through strategic alliances and public-private partnerships that have local impact. This is a congressionally directed project.
Internet URL [http://www.gcu-uec.org/GCUhistory.pdf].

Small Business Innovation Research Program
Project MA-26-7076
Funding: $220,000 Schedule: November 2000 - December 2002
Performer: Volpe National Transportation Systems Center
Kendall Square, Cambridge, Massachusetts 02142
Investigator: Joseph Henebury Phone: 617.494.2051 Fax: 617.494.2370
FTA Project Monitor: Stewart McKeown, TRI Phone: 202.366.0244 Fax: 202.366.3765
Email [stewart.mckeown@fta.dot.gov]

Description: The Department's Small Business Innovative Research (SBIR) is an annual program that seeks to capture the entrepreneurial initiative of small high technology firms to help meet federal research and development objectives. Annually, the Department solicits research proposals from small businesses that address high priority research needs of its individual agencies and that have potential for commercialization. FTA looks for projects that respond to transit research needs and, at the same time, enhance the innovative capacity and global competitiveness of small high-tech businesses. Projects are selected through a competitive process. The SBIR program has three phases. Phase I projects are designed to determine the feasibility of a particular product or concept and may be funded up to $100,000 for a

performance period up to six months. Phase I research firms are eligible to participate in Phase II based on results of Phase I efforts, potential for commercialization, and availability of appropriated funds to support Phase II. Phase II is the principal research effort designed to develop the product or concept to the point where it is commercially viable. Phase II projects have a period of performance up to 2 years and may have a dollar value of $500,000. Phase III projects use private sector assistance and funding for pursuing commercial applications of R&D funded in Phases 1 and II. Overall the program provides FTA with valuable research assistance and stimulates technological innovation and growth of small high-tech research firms.
SBIR Website [<http://www.volpe.dot.gov/sbir>].

Trade Mission to Southeast Asia
Project DC-26-7102
Funding: $56,000 Schedule: July 2001 - August 2001
Performer: Department of Commerce
U.S. and Foreign Commercial Service, Washington, DC 20230
FTA Project Monitor: Rita Daguillard, TRI Phone: 202.366.0955 Fax: 202.366.3765
Email [rita.daguillard@fta.dot.gov]

Description: The purpose of the Trade Mission project was to promote exports of American transit related goods and services to the countries of Southeast Asia by introducing U.S. suppliers to foreign markets. The FTA International Mass Transportation Program led a trade mission that met with key stakeholders and decisionmakers in Bangkok, Thailand; Ho Chi Minh City, Vietnam; Guangzhou and Shenzen, China; and Hong Kong. Participating companies included the American Public Transportation Association, ITS America, Bechtel, Cummins, Louis Berger & Associates, Parsons Transportation Group, Manna Consulting, Transit Sales International, and Rockwell Automation. The FTA International Mass Transportation Program was established under TEA-21. The program is designed to inform the domestic mass transportation industry about technological innovations available in the international marketplace, and to undertake activities that may afford domestic business the opportunity to become globally competitive in the export of mass transportation products and services. Website URL [http://www.usatrade.gov/imtp/]

United States Pavilion at UITP Public Transport Expo 2001
Project DC-26-72036
Funding: $76,000 Schedule: March 2001- May 2001
Performer: Federal Transit Administration
International Mass Transportation Program, Washington, DC 20590
FTA Project Monitor: Rita Daguillard, TRI Phone: 202.366.0955 Fax: 202.366.3765
Email [rita.daguillard@fta.dot.gov]

Description: The purpose of this project was to highlight U.S. transit related services and technologies at the International Union of Public Transport's (UITP) City Transportation 2001 Exhibition, held in London, England. The FTA International Mass Transportation Program staff organized a U.S. pavilion, featuring the transit products and services of major American organizations and corporations of the industry. Among those represented at the U.S. Pavilion were the following: American Public Transportation Association, Easter Seals Project Action,

Booz-Allen & Hamilton, Impulse NC, Spear Technologies, Digital Recorders/TwinVision, Chance Coach, Parsons Transportation Group, Transmetrics, NextBus Information Systems, I/O Controls, AMEREX, Kaletel, MultiModal Applied Systems, and Washington Group International.

Human Resources

ADA Key Rail Station Compliance Assessment
Project CA-90-8001
Funding: $399,754 Schedule: September 2001 - March 2003
Performer: Kensington Systems, Inc.
4021 Murdstone Court, Suite 301, Fairfax, Virginia 22033-2826
Investigator: Glenda F. Wilson Phone: 703.278.8600 Fax: 703.352.6935
FTA Project Monitor: Clarissa Swann, TCR Phone: 202.366.0800 Fax: 202.366.3475
Email [clarissa.swann@fta.dot.gov]

Description: Transportation is vital in maintaining mobility for persons with disabilities—provides links to employment, health care centers, community affairs, and improves the overall quality of life. The Americans with Disabilities Act (ADA) requires that public transportation services and facilities, including trains and rail stations, be accessible to persons with disabilities. New rail stations, those designated as key stations and where substantial station facility alterations have occurred, must be made accessible. To be eligible for federal funding, the grant recipient must self-certify compliance with ADA requirements. Key station compliance assessment is one of the most important aspects of ADA rail oversight. The objective of this continuing compliance assessment project is to assist the FTA staff in implementing its ADA rail oversight responsibility. The compliance assessment includes onsite evaluation of 150 additional existing and new key stations at 13 rail systems. The contractor will assess the selected key and new rail stations, prepare a final report and follow-up activity with transit systems to ensure that recommended actions are taken to correct deficiencies noted in the compliance assessment. Key rail station assessments have facilitated a significant increase in the number of fully compliant key rail stations over the last several years. Assessments assure that stations certified as ADA compliant remain in actual compliance with current standards. The FTA Office of Civil Rights selects key rail stations for review.

Building Transit Workforce Skills in Five American Cities
Project DC-26-7121
Funding: $250,000 Schedule: January 2001 - December 2002
Performer: AFL-CIO Working for America Institute
815 16th Street, NW, Washington, DC 20006
Investigator: Brian Turner Phone: 202.466.8010
FTA Project Monitor: Pauline D'Antignac, TRI Phone: 202.366.0234 Fax: 202.366.3765
Email [pauline.dantignac@fta.dot.gov]

Description: Changing technology and the increasing demand for a skilled and diverse workforce put a premium on training and education at both the entry level and career development levels in the transit industry. This cooperative agreement supports the Transport

Workers Union of America need to better understand and utilize the advanced transit technologies and new job and skill requirements within the transit workforce in the five cities represented by the Transport Workers Union. The project is targeted to increase the awareness and need to begin the development of transit workforce education and training programs linked to the new technologies and innovative services and management techniques, that improve the performance and increase productivity in the transit workforce. Project activities include an evaluation of previous pilot training programs, a pilot assessment of transit workforce needs and skill requirements, along with the development and pilot test of a curriculum for two new occupational skill sets based on new technologies and current skill shortages in mass transit. Both a pilot assessment and an educational program will be developed in San Francisco and Houston, based on an earlier effort centered in New York City, Philadelphia, and Miami. Educational materials and curricula, training materials and programs will be developed, designed, and delivered to improve performance and increase productivity in the transit workforce, represented by the Transport Workers Union in five cities.

United Cerebral Palsy High School Program
Project MD-26-2002.03
Funding: $25,000 Schedule: October 2001 - October 2002
Performer: Cerebral Palsy of Prince George's and Montgomery Counties, Inc.
3901 Woodhaven Lane, Bowie, Maryland 20715-1299
Investigator: Dr. Charles McNelly Phone: 301.262.4993 Fax: 301.262.4982
FTA Project Monitor: Linda King, TCR Phone: 202.366.0816 Fax: 202.366.3475
Email [linda.king@fta.dot.gov]

Description: This project is a continuation of a program funded since 1994 to provide young adults with disabilities attending high schools in Prince George's and Montgomery Counties, with exposure to careers in transportation and technology. The program is in its seventh year. It is designed to introduce student to the professions, disciplines, and summer employment opportunities in the transportation sector. Students have the opportunity to attend and participate in workshops at the Department and to test their interests and abilities in a real world working environment. The young adults are provided with career counseling and information pertaining to the career and educational opportunities in the transportation sector. This program helps to ensure equal opportunity in DOT-assisted programs and to promote diversity in the workforce, the transportation industry, and supporting professions.

Information & Communication

Advanced Public Transportation Systems Information Exchange
Project DC-26-7080.2
Funding: $75,000 Schedule: September 2001- September 2002
Performer: American Public Transportation Association
1666 K Street, NW, 11th Floor, Washington, DC 20006
Investigator: Lou Sanders Phone: 202.898.4086 Fax: 202.898.4070
FTA Project Monitor: Helen Tann, TRI Phone: 202.366.0207 Fax: 202.366.3765
Email [helen.tann@fta.dot.gov]

Description: The objective of this amendment is to provide the resources necessary for the American Public Transportation Authority (APTA) to further engage in outreach activities that advance a better understanding of the transit element of the Intelligent Transportation Systems (ITS) program and FTA International Mass Transportation Program. Under this project, APTA will conduct regional workshops designed to promote adoption of integrated ITS Transit technologies in public transportation, information exchange activities, and increase public awareness of the benefits of ITS Transit products and services at both the national and international levels. Workshops will focus on ITS Transit best practices, deployment of Traveler Information Systems, and ITS Transit applications in Bus Rapid Transit.

Best Practices Procurement Manual
Project MD-90-3007
Funding: $50,000 Schedule: February 2001 - February 2006
Performer: Leon Snead & Co.
416 Hungerford Drive, Suite 400, Rockville, Maryland 20850
Investigator: Leon Snead Phone: 301.738.8190 Fax: 301.738.8210
FTA Project Manager: Carolyn Thompson, TAD Phone: 202.366.5470 Fax: 202.366.3808
Email [carolyn.thompson@fta.dot.gov] [leonsnead.companypc@erols.com]

Description: This project provides ongoing support for the continuation, improvement, and distribution of the Federal Transit Administration's *Best Practices Procurement Manual.* The manual is designed to assist recipients of federal funds in conducting third party procurement activities and in meeting the federal standards documented in FTA Circular 4220.1D. The project also provides support for industry task force meetings, electronic helpline, and the maintenance and updating of the Procurement System Review Handbook. The *Best Practices Procurement Manual* is currently available on the FTA Internet Website at URL [http://www.fta.dot.gov/ntl/index.html]

FTA Internet Website Support Sevices
Project VA-26-5005.2
Funding: $100,000 Schedule: September 2001- September 2002
Performer: Micro Information Systems
1921 Eden Way North, Suite 123, Chesapeake, Virginia 23320
FTA Project Monitor: Robert Owens, TBP Phone: 202.366.1689 Fax: 202.366.7116
Email [robert.owens@fta.dot.gov]

Description: This project furthers the development of the FTA public website on the Internet World-Wide-Web. It includes website support in the areas of electronic publishing, information dissemination, and system development and design. The website is a comprehensive and customer-oriented service providing users with an extensive amount of information and knowledge about FTA and its programs, products, policies, partnerships, and future role in transit. The website has become a key tool for customer service, communications, knowledge management, research and outreach activities. It provides rapid and easy to timely transportation information, products, and services, including FTA's national research and technology program, strategic plan, performance indicators, grants, legislation, and publications. The website sereves as a port of entry to a large array of electronic resources, including safety and security programs

and technologies, online databases, electronic document libraries, education and training centers, international programs, cooperative research programs, specialized transportation, and employment centers. The website provides links and portals to public transportation systems and resources. Grantees, the general public, researchers, practitioners, consultants, congressional staff and the transportation community-at-large all make routine use of the electronic global storehouse of information available on the FTA customer-oriented website.

ITS Information Management Training Course
Project NJ-26-7007
Funding: $100,000 Schedule: January 2001 - January 2002
Performer: Palisades Consulting Group
24 West Railroad Avenue, Suite 161, Tenafly, New Jersey 07670
Investigator: Eva Lerner-Lam Phone: 201.567.0088 Fax: 201.384.6779
FTA Project Monitor: Helen Tann, TRI Phone: 202.366.0207 Fax: 202.366.3765
Email [helen.tann@fta.dot.gov]

Description: This project will develop a training course to assist transit professional in developing the knowledge, experience and skills required for Intelligent Transportation Systems (ITS) information management. Although the focus is on managing ITS information, the approach considers ITS information management in the context of the total transit agency system. Successful implementation of this program will increase transit industry's awareness of the importance of a system's approach to information management, including how the application of advanced technologies and innovative techniques result in safer, integrated, and more efficient transit operations. This is the first phase of a multi-phase program. Emphasis is on delivering quality training, upgrading the skills and knowledge required of ITS professionals to perform effectively and efficiently in transportation service. The project fosters and supports the Department's ITS Professional Capacity Building Program, designed to assist transportation professionals in developing the knowledge, skills, and abilities required to deploy, operate, and manage ITS projects at all levels of government, academia, and public and private sectors. The project is funded under the National ITS Program, administered by the Department's ITS Joint Program Office.

National Transit Database Revision – Phase 3
Project VA-26-5009
Funding: $1,500,000 Schedule: February 2001 - March 2002
Performer: Signal Corporation
3040 Williams Drive, Suite 20, Fairfax, Virginia 22031
FTA Project Monitor: Gary Delorme, TPM Phone: 202.366.0201 Fax: 202.366.3765
Email [gary.delorme@fta.dot.gov]

Description: The FTA has significant interest in revising, improving and maintaining the congressionally mandated and Internet-based National Transit Database (NTD) [*49 U.S.C. 535(a)(1)(2)*]. It is the FTA official and national database of statistics for the transit industry, and the only comprehensive source of domestic transit data, including safety and performance data. Each year approximately 600 transit operators report to FTA on transit activities in more than 400 urbanized area. NTD data are reported to Congress, used for transit services planning,

to apportion billions of dollars in Urbanized Area Formula funds back to reporting transit agencies, and to provide benchmarks for FTA Strategic Plan. The FY 2001 project activities are designed to better serve NTD stakeholders by providing training for the 600 transit agencies that collect and report public mass transportation financial and operating data to the NTD reporting system. This project also provides for new software development to help process the data reported via the Internet, as well as for software to run the urbanized area apportionment formula. This is the third and final phase of the project. Major upgrades to the NTD software system and components will be tested and implemented, as well as the newly revised NTD web-based reporting modules. NTD improvements are based on stakeholders' concerns, namely those raised by the National Transportation Safety board. This is a congressionally directed project.

Transportation Research Board Core Program
Project DC-26-7123
Funding: $150,000 Schedule: July 2001 – July 2002
Performer: National Academy of Sciences, Transportation Research Board
500 Fifth Street, NW, Washington, DC
FTA Project Monitor: Lisa Colbert, TRI Phone: 202.366.9261 Fax: 202.366.3765
Email [lisa.Colbert@fta.dot.gov]

Description: This project provides ongoing support to the core activities of the Transportation Research Board (TRB)—a unique source of independent expertise that develops and disseminates innovative research information addressing transit issues. The TRB core activities are designed to generate information, share ideas, and transfer knowledge about FTA's Research and Technology programs and projects with partners in the transportation community and with the general public. This core program support enables TRB to maintain an extensive network of transit experts in research, operations, and academia to work together on commonly held critical transit needs, and to resolve these issues through transit research, discussion, and dissemination. Under this project, activities of the TRB core research program and FTA Research & Technology Program areas are published and communicated in various formats--information packets, journals, brochures, best practices manual, annotated bibliographies, and other materials that will create public awareness of the benefits of transit.

Another core activity supported under this project is the Department's Transportation Research Information Service (TRIS) online bibliographic database–the world's most comprehensive source of surface transportation information in the world. In 2001, 26,000 records were added to TRIS, about 1650 were transit records. The TRIS database now totals 549,710 records. TRIS is available worldwide and contains both (1) summary descriptions of *unpublished research* in progress, and (2) document abstracts of *published literature* on highway research, rural, urban, and intercity transit research, highway safety research, railroad research and maritime research. The web version of the TRIS Database (published research) is available on the Internet as TRIS Online [http://www.ntl.bts.gov/tris]. The Research in Progress database (unpublished research) is available on the TRB Website at [http://rip.trb.org/].

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